

# ‘Til death do us part: Do long-tenured independent directors improve firm performance?

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## **Abstract**

Recent surveys show that 24% of independent directors in Russel 3,000 firms have continuously served on their boards for fifteen years or more. Based on a sample of S&P 1500 firms over the period 1998-2012, we show that long-tenure directors improve firm performance, largely determined by only one director exhibiting an abnormally long tenure. In firms where one independent director has served on the board for 20 years or more we document strong positive effects on financial performance. The different channels include: (1) Long-tenured directors protect the firm and other board members from corporate scandals, (2) Long-tenured independent directors appear to be highly skilled individuals that over time accumulate information and knowledge that is valuable to the companies they serve in, even when the cost of acquiring information is high. Our results have material implications for the ongoing debate and recent trends on setting tenure limits for outside directors.

# 1 Introduction

A growing number of countries have adopted tenure-related guidelines or restrictions for independent directors. With very few exceptions, the “comply and explain” model prevails, and the recommended maximum tenure for a corporate director is between nine and twelve years. In apparent contradiction, a recent GMI survey<sup>1</sup> shows that 24% of independent directors in Russell 3,000 firms have continuously served in the same firm for fifteen years or more. Why?

In this paper we show that firms characterized by the presence of a single director with a very long tenure (LT director/firm) exhibit superior performance, lower risk of outside litigation and higher disclosure and information acquisition. We argue that long tenured directors are superiorly skilled individuals that provide tangible value added to their firms. The extension of the tenure length allows to accumulate information about past events in the firm and about responses to exogenous market shocks that help weathering crises and discontinuities. Supporting the view that the effectiveness of one independent director is also the result of a long build-up process, William George, a Harvard Business School professor and independent director stated: "*When directors are truly independent of the companies they serve, they generally lack the [...] knowledge about the industry or business [...]. [O]f the nine boards I served on as an independent director I had industry-specific knowledge in exactly none of them*".<sup>2</sup> Practitioners and activist investors have increasingly claimed that long tenures may make directors less effective and independent in their oversight.<sup>3</sup> Our results are not in contrast with such mounting opposition to lengthy terms for independent directors. In fact, we show that

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<sup>1</sup>GMI Ratings (2013), "Directors Tenure and Gender Diversity in the United States: a Scenario Analysis".

<sup>2</sup>See: George, W. (2013). William George is a professor of management practice at Harvard Business School, former chairman and CEO of Medtronic and is or has been independent director at ExxonMobil, Goldman Sachs, Mayo Clinic, Novartis AG and Target.

<sup>3</sup>For instance, as reported by the Wall Street Journal on 2/28/2011, investor unhappiness about too many older directors spurred a proxy fight at Occidental Petroleum.

while LT directors are truly beneficial to their companies, lengthy average tenures across all other independent board members fail to provide value and in some specifications appear to have a negative impact on performance and firm stability.

Despite the profound effect on the governance of companies, empirical studies have failed to provide clear evidence on the effect of increased director tenures. We argue that a reason for the lack of conclusive evidence is a mis-specification of the main explanatory variable. Research on independent directors usually adopts the average tenure across independent board members as the main dependent variable (e.g. Vafeas, 2003; Huang, 2013). Given that multiple regulation changes have increased the fraction of independent board members that now represent 70% to 80% of the board, average board measures significantly confound the effect of a single long tenure that gets diluted by the majority of board members who exhibit shorter tenures. A crucial difference of our methodology is that we focus on the puzzling phenomenon of extremely long tenures that do not occur board-wide but are specific to a single director. Switching the focus to individual, abnormal tenure allows us to isolate the strongly beneficial effects on firm performance that are increasing in the single director tenure and level off after a surprisingly long period. As in many corporate finance studies, also our findings might be subject to potential endogeneity. Our research design mitigates the reverse causality risk because if positive performance determines board composition then we should observe an extension of tenure terms across all board members. This evidence is absent in our data. However, other sources of endogeneity might be at play. We address these problems first by introducing several types of fixed-effects and clustering levels in our panel-data OLS regressions. We then provide direct endogeneity tests by running a set of IV regressions and dynamic regressions. Results are unchanged and support the main quadratic relationship between the tenure of the single longest serving director and firm performance found in the main specification.

The positive effects documented in our paper raise two important questions: first, how do LT directors affect performance? second, what are the determinants of long tenure? The first question deals with the nature of independent directors whose main role is to protect firm stakeholders by monitoring the firm, its management and the external environment (ICGN 2014). In this respect, the directors' task is crucially related to the quality and amount of information they can gather and process. Duchin et al. (2010) show that independent board members are valuable to firms only when the outside information environment allows acquiring and processing information easily. When information on the firm is opaque, independent board members' monitoring becomes considerably more complex, ultimately translating into negative firm performance. If long tenured directors can gather and store valuable information that they share with other independent board members, we should observe a moderate to null sensitivity of the firm performance to the opaqueness of the outside information environment as defined in Duchin et al. (2010). Our tests strongly confirm this conjecture showing an unchanged magnitude and significance of the LT variables on performance, but no statistical effect in the interaction between the tenure of LT directors and the quality of the information environment. Superior information translates, among others, into a significantly lower external litigation risk as documented by a set of tests on the likelihood of LT firms to be defendant in a security class action lawsuit. Such protection effect is robust to alternative specification of the litigation risk variable.

Tackling the second question requires looking at observable individual factors but more importantly finding proxies for unobservable characteristics. In a set of comprehensive tests we show that not all board members are equally likely to become long tenured directors. Differently, personal characteristics and the market perception of these traits and skills positively impact the probability of one individual to become a long tenured director. Directors with high quality education such as graduate and

Ivy League degrees are significantly more likely to evolve into LT directors than other independent board members. However, unobservable skills may still explain their long association with a firm. Looking at contemporaneous board directorships at the time of the first appointment in the firm in which a director eventually becomes a LT board member, we show that ex-ante these individuals were holding a substantially larger number of board appointments than other directors. This suggests that firms at large were attributing to these candidates superior qualities for which they were prepared to compete. Supporting the market preference for skilled directors we document a spillover effect on the performance of firms in which LT directors hold appointments as independent but not long tenured directors.

Our findings have several normative implications. First, consistent with Katz and McIntosh (2014), we posit that board-wide term limits may be detrimental to the board itself, the company, and the shareholders, in particular if such limits force valuable directors off the board. Second, our results show that LT directors are disproportionately more likely to be nominated as Lead Independent Directors (LID), a role that has become increasingly relevant in listed companies, following a set of regulation changes in the US stock market. Since firms recognize the value of LT directors and leverage on this by appointing them as LID, an unconditional tenure limit would negatively affect the effectiveness of the LID function ultimately weakening the governance of companies.

The remainder of the paper is organized as follows: Section 2 reviews the literature, the main governance regulations, and outlines the hypotheses; Section 3 presents data and methodology. We provide empirical results in section 4. In section 5 we discuss implications and conclude.

## 2 Literature and governance regulation

### 2.1 Extant literature

Literature on board independence is massive, however, there is surprisingly limited evidence about the effects of independent directors tenure on firm performance.

Early management studies provide preliminary evidence of the effects of average outside directors tenure on corporate governance and firm performance. According to Bacon and Brown (1973) it takes three to five years for a director to gain an "*adequate understanding of a firm and how it operates*". Similarly, Vance (1983) argued that forced retirement of long tenured directors lead to a waste of valuable experience. Supporting these views, Kosnik (1987) looking at a sample of 110 companies, shows that boards where directors have longer tenures are less likely to approve "greenmail" buybacks thus offering stakeholders at large better protection. Kesner (1988) shows that directors with longer tenure are more likely to sit in compensation or audit committees. Westphal & Khanna, (2003) point out that average outside member tenure appears to increase director independence, by offering insulation against social isolation for objecting to a course of action preferred by executives. In an earlier paper, Buchanan (1974) showed that extended tenures align interests of outside directors and stakeholders by increasing the willingness to exert effort and commit to the firm. A similar argument has been put forth by Shivdasani (1993) who suggested increasing outside directors equity holdings as an incentive alignment mechanism. Fogel et al. (2014) provide further support to this view by showing that powerful independent directors are valuable to firms and that the market recognizes such value.

Yet, other studies highlighted possible detrimental effects of extended board tenure. Katz (1982) and Lipton and Lorsch (1992) claim that long tenure may lead directors to become too involved in the management of the firms with potential executive con-

flicts. More recently, Hwang and Kim (2009) and Fracassi and Tate (2012) show that independent directors tend to have closer ties with executives, and in particular CEOs, than optimal corporate governance rules would dictate.

Vafeas (2003) summarizes these opposing views in two rival hypotheses. The "expertise hypothesis" suggests that lengthy experience at the same firm provides directors with significant knowledge about the firm and its business environment, which ultimately results in greater commitment and competence in governing its affairs. The rival "management friendliness hypothesis" on the other hand proposes that seasoned directors are more likely to befriend, and less likely to monitor managers. In fact, directors may over time be co-opted by the management and become less mobile and less employable. This phenomenon is more probable in firms with more powerful CEOs, i.e. firms where CEOs participate in the nomination process, have long tenured CEO, and significant voting power. Vafeas (2003) research approach tests whether directors activity inside and outside the firm is motivated predominantly by expertise or managerial friendliness. Results offer partial support to the idea that director long tenures are often associated with powerful CEOs, consistently with Hwang and Kim (2009) and with the CEO entrenchment hypothesis in Baldenius et al. (2014).

In a recent contribution, Huang (2013) for the first time analyzes the effects of average tenure of outside directors on several dimensions of firm performance. His results show signs of a U-shaped inverse relationship between tenure and performance suggesting an optimal tenure length around nine years.

In our paper we crucially differentiate from this literature by isolating the effects of a single, very long tenured director from those of the average board tenure. Our contribution is motivated by the observation that different board compositions can lead to similar average values, underscoring the relevance of the dispersion of tenure lengths across board members. This intuition also implies that average board tenure is therefore



a noisy measure that cannot meaningfully capture the true effect on performance.

## **2.2 Corporate governance regulation**

Despite ambiguous empirical evidence, there is a growing concern about the issue of independent directors tenure. Institutional Shareholders Service, a shareholder activist group, has started including independent directors tenure as a constituent of its governance score (ISS, 2015). In a similar vein, the Council of Institutional Investors, a US advocacy group, has proposed policies for clearly assessing independence of outside directors. Regulators worldwide have expressed similar concerns issuing tenure-related guidelines or restrictions for independent director: France imposes a twelve years limit to allow qualifying a director as independent; the European Commission recommends that independent directors serve a maximum of three terms or twelve years; the UK Corporate Governance Code (formerly known as the Combined Code) requires that a board should explain, in its annual disclosures, its reasons for determining that a director who has served more than nine years still qualifies as independent. Hong Kong requires a special, separate vote to keep a director beyond a recommended nine-year cap; Spain's Good Governance Code recommends a twelve-year limit for independent directors, while South Africa and Singapore both say boards should do a "rigorous review" of directors' independence if they have served more than nine years; Singapore also requires boards to explain why the directors are considered independent beyond the nine-year threshold.

## **2.3 Hypotheses**

In this paper we concur with the management friendliness hypothesis that suggests that an average long tenure by all independent directors may lead to leniency and lack of responsiveness by the board. However, we depart from it by proposing that some firms

may find beneficial to keep on the board a member for a long time. We argue that a long tenured director can perform several roles that we model as research hypotheses.

First, an extended tenure by a LT director helps building and maintaining a knowledge about the firm and its operations. This information acquisition process builds over time making a LT director an "information reservoir" that can prove beneficial to executives and more importantly to other, more frequently rotating board members. This conjecture is supported by the anecdotal evidence on the significant amount of time necessary to acquire a full set of information and skills by newly appointed outside members. This feature should translate into greater board effectiveness and ultimately into superior performance at the firm level. Accordingly we hypothesize:

**Hp. 1:** *Firm performance increases with the tenure of the longest serving director.*

A long tenured director experience translates into a greater information set that allows a better and more timely response to market-level and firm-level shocks. This helps in absorbing the lack of experience of younger directors that may become particularly detrimental when information on the firm is opaque. This information acquisition and processing effect can unfold along different channels. First, as documented by Karpoff et al. (2008) and Gande and Lewis (2009) firms are severely affected by corporate scandals. Brochet and Srinivasan (2012) show that independent directors are not immune to scandals and face personal risks. In this respect a long tenure helps in building experience that is valuable in recognizing malpractice signals and potential outside threats. Similarly to the arguments in Beasley (1996), in order to avoid the personal and firm-level costs of a scandal, a long tenured director has an incentive and the skills to minimize litigation risks. Second, LT directors knowledge and experience can act as a complement to the external sources of information on which outside directors primarily rely as documented by Duchin et al. (2010). Thirdly, superior information by LT directors can determine a better timing of LT insider trades and therefore increase

the diffusion of valuable information in the market.

**Hp. 2:** *Long tenured directors exhibit superior information acquisition and processing.*

A final question with important normative implications for governance practices is whether long tenured directors are the result of the extension of appointment terms of a random director or rather if they are individuals with exceptional skills that can truly create value by performing the roles conjectured above. A significant body of literature (see for example: Fahlenbrach and Stulz, 2010; Boone et al., 2007; Hermalin and Weisbach, 1988, 1991) has investigated the characteristics of board members. Results are aligned in showing that the monitoring and oversight role of board members is better served by qualified board members, equipped with a broad set of skills that make them valuable directors. For example, Fahlenbrach and Stulz (2010) investigate the strong preference of companies in hiring active CEOs as independent board members because of the expected superior ability in detecting questionable corporate practices and the material contribution they can offer in defining the firm strategy. Following these arguments we believe that directors that eventually become LT exhibit superior skills when compared with the average outside director. These differences are observable from the beginning of the director career and translate into a significant value contribution to the firm through an extended relationship. Accordingly we formulate the following:

**Hp. 3:** *Directors who evolve being LT have superior skills.*

### **3 Data and methodology**

Our sample is composed of S&P 1500 companies excluding utilities and financial service, over a fifteen years period from 1998 to 2012. For each firm year we obtain board composition and director information from RiskMetrics and BoardEx. We supplement

this information with company financial and accounting data from COMPUSTAT. This approach leads to a final sample of 14,740 firm-year observations on 2,137 distinct firms. Table 1 reports descriptive statistics.

INSERT TABLE 1 HERE

Looking at board characteristics, the average board size across all firm-years is 9 members. Over 70% of the board members are independent with an average tenure of 7.6 years. However, the longest serving independent director average tenure is considerably higher at almost 16 years. Outside directors tend to be limitedly involved in other boards (Busy Board=0.02). Blockholders are represented on board in over 11% of the observations. More than half of the companies have staggered board provisions. CEOs own a substantial fraction of the company in less than 4% of the cases. In over 60% of the cases they also act as Chairman. Similarly to the other insiders, CEOs tend to have long tenures in excess of 10 years.

### **3.1 Long tenure measures**

Our main research objective is focused on the impact of long tenured independent directors on firm performance and operations. A methodological complexity stems from the design of an appropriate measure of Long Tenure (LT). First, tenure is somewhat mechanically associated with company's age. This characteristic, while obviously biasing results towards larger firms, is partially mitigated by the fact that S&P 1500 firms tend, by construction, to be well established and relatively old companies and therefore provide a relatively homogenous sample. Secondly, there is no unconditional measure of "long" tenure. We address this methodological hurdle by developing two distinct measures: we first develop a discrete measure that we adopt for descriptive statistics

purposes and for static tests; we then flank this measure with a continuous metric that we use in regression analyses. For both measures we impose the constraint that tenure need to be uninterrupted over the measurement period. We allow a maximum of six months grace period to avoid Type I classification errors originated by the interruption of tenures for strategic or personal reasons.<sup>4</sup>.

### 3.1.1 Discrete measure

The challenge associated with the design of a discrete measure is largely that of identifying "long" tenures through either an arbitrary cutoff or a benchmarked one. While benchmarked measures seem intuitively more appropriate they are also affected by significant degrees of subjectivity. We explored several alternative measures to try and deal with these issues.

1. As a first measure we define a director as long tenured if his/her tenure in 2012 exceeds an arbitrary cutoff of twenty years.

The cutoff has been selected following empirical evidence in the GMI survey that shows a surprising similar fraction of firms with director tenures in excess of 15 and 20 years. Additionally, corporate governance guidelines, academics and practitioners begin to question independence after 12 years of uninterrupted service and consistently converge in excess of 15 years. Given that we want to unequivocally identify long tenures we impose further restriction to the threshold by selecting a 20 years limit that ensures a robust identification of LT firms in descriptive

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<sup>4</sup>We document several cases of directors that apparently leave the board only to join again after a few months. We manually inspected such cases analyzed finding that they are due to: 1) transient personal reasons, mostly health-related; 2) apparently "strategic" interruptions to artificially reduce outside directors average tenure; 3) noise in the data collection process.

For transparency we need to state that our data cleaning actions deal with observable inconsistencies in the data. Yet we cannot exclude the existence of data collection errors in the RiskMetrics database that may hide tenure interruptions.

analyses.

2. We construct benchmarked specifications as the average tenure of outside director augmented by alternatively:
  - (a) 1 and 2 standard deviations;
  - (b) five or seven years.

Both set of measures have strengths and weaknesses. The first measure clearly captures "long" tenures, however it may underestimate the true effects of tenure length that may appear on shorter periods. The second approach, despite its apparently objective computation is still influenced by the arbitrary selection of the augmentation factor. Running some comparative preliminary analyses we observe that the results obtained using the two measures tend to converge when the augmentation factor is such that the cutoff approaches the 20 years threshold. In the light of these considerations, we believe that the first approach benefits outweigh the cost of the subjective selection of the cutoff, therefore, we have adopted it as our working measure.

### **3.1.2 Continuous measure**

We begin by determining the absolute number of years of uninterrupted appointment by each individual director for each firm-year. We use this measure to identify the longest serving director and to compute the average tenure of independent board members. Performance effects due to directors' experience are likely to be decreasing over time. Similarly, individuals' abilities tend to slowly fade over time. We account for this possible negative second-order effect on performance by introducing quadratic specifications of the tenure measure in our tests. We use board measures and LT director measures as the main explanatory variables in our regression analyses.

## 3.2 Descriptive statistics

For descriptive statistics and univariate tests purposes we classify firms as Long Tenure (LT) following the discrete measure introduced in the previous section. We then identify a Treatment and Control group by aggregating respectively LT firms and non-LT firms. Following this initial classification, we backtrack each non-LT firm to control that in previous years they did not have a LT director sitting on the board that eventually left it.<sup>5</sup> If we find evidence of the presence of LT directors in preceding years, we exclude that firm from the control group.

Table 2 shows the board composition across the sample of firms.

INSERT TABLE 2 HERE

Board composition is rather similar although LT firms show a slightly larger board size (9.87 vs. 9.22,  $p < 0.01$ ) and age (63.84 vs. 62.25,  $p < 0.01$ ). However, LT firms are also characterized by a significantly higher number of outside directors (8.45 vs 7.81,  $p < 0.01$ ) which does not seem to support the view that tenure entails more entrenchment. In fact, the median number of LT directors in treatment firms is 1 with a slightly higher average of 1.42. Two thirds of LT firms exhibit one long tenured director only and nearly all other LT firms have no more than two LT directors out of an average board size of ten. This evidence strongly confirms that average board tenure measures captures poorly the long tenure phenomenon, because long tenures significantly away from the mean value are mainly determined by one, sometimes two, "outliers", rather than by a widespread abnormal increase in tenure length.

In Table 3 we provide descriptive statistics of the two groups. Panel A reports unmatched figures while Panel B reports figures comparing only observations matched by industry, market equity and age.

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<sup>5</sup>At this stage we do not investigate the causes of departure.

INSERT TABLE 3 HERE

Results show that LT firms are slightly older (28.78 vs. 26.45,  $p < 0.01$ ) and essentially similar in terms of book and market value with a small but not significant size difference. Differently, the treatment group shows a strongly significant higher profitability ratio EBITDA/LaggedTotalAssets (one year lagged) of 0.17 for the treatment group vs. 0.16 for the control group ( $p < 0.01$ ). This stark difference is essentially unchanged both in magnitude and significance after matching firms in the two groups based on industry, size and age. Importantly, the Tobin's Q is significantly larger for LT firms unconditional (2.03 vs. 1.93,  $p < 0.01$ ) and conditional (2.08 vs. 1.99,  $p < 0.05$ ) on matching. In Table 4 we further analyze the comparative performance of the two groups by providing year-level evidence. Treatment companies show a consistently superior performance across all years for the profitability measure (EBITDA/LaggedTotalAssets). The Tobin's Q is also consistently higher although the statistical significance of the difference is lower for the unmatched sample.

INSERT TABLE 4 HERE

These preliminary results support the view that there is a structural difference between LT and non-LT firms with non-negligible economic effects.

## 4 Results

### 4.1 Firm Performance

Our main set of tests provides panel data estimation of the effects on firm performance - measured as Tobin's Q - by LT directors. In these tests we turn to a continuous measure of long tenure to avoid measurement biases. We model the main explanatory



variable as linear and quadratic because the effect on performance is reasonably likely to be diminishing over time as LT directors age. Our main regression takes the following functional form:

$$Q_{i,t} = \alpha + \beta_1 TenureLTDirector + \beta_2 TenureLTDirector^2 + \Phi BoardControls + \Gamma Controls + \theta + \tau + \epsilon \quad (1)$$

where:

- $Q_{i,t}$  is the Tobin's Q of firm  $i$  at time  $t$
- $TenureLTDirector$  is the main explanatory variable and measures the tenure in years of the longest serving director in the board.
- $BoardControls$  is a vector of board-specific controls, namely: average tenure of independent directors (linear and quadratic), average tenure of independent directors excluding the longest tenured director (linear and quadratic), tenure of 2<sup>nd</sup> longest serving director (linear and quadratic), Standard deviation of independent directors tenure, average tenure of inside directors.
- $Controls$  is a vector of the following controls: CEO age, CEO ownership in excess of 20%, CEO-chairman, CEO tenure on board, Fraction of outside directors, Busy board, Blockholder on board, Board size, Firm age, Total Assets, R&D/Sales ratio, EBITDA/Total assets lagged, Staggered Board, Standard deviation of stock price return in the previous fiscal year.
- $\theta, \tau$  are firm (or industry) and time (year) fixed effects, respectively

INSERT TABLE 5 HERE

Table 5 reports results for a battery of different models. Model (1) reports our baseline model. The tenure of the longest serving director is positively related to the company's performance measured by the same year Tobin's Q. The positive parameter is significant at the 1% level and surprisingly large, in particular when compared to the quadratic term. As expected the effect on performance tends to diminish over time but this occurs for extremely long tenures.

Model (2) tests an alternative specification where we exclude our main variable and adopt as the key couplet of explanatory variables the average tenure of the independent board members. Results are aligned with Huang (2013) in showing a similar non-linear relationship which is suggestive of a positive economic effect of longer tenures across all independent directors. Model (3) repeats the test by excluding the longest tenured director from the average tenure computation. Results turn insignificant indicating that the previously observed effect is largely attributable to the longest serving director. In models (5) and (6) we jointly test the effects of the two alternative sets of variables. Model (5) regresses the performance on both the tenure of the longest serving director (linear and quadratic) and the average tenure of the independent members. While our main explanatory variable maintains its sign and significance, the average board tenure variables switch signs and are weakly indicative of a reverse quadratic effect of the average independent directors tenure, although the negative parameter of the linear term is not significant. This result is largely similar in model (6) where we replace the unconditional measures of average independent board members tenure with the averages calculated by excluding the longest serving director. In Table 2, we showed that LT firms have generally only 1 LT director. However, the overwhelming majority of LT firms with multiple LT directors have only two. In models (4) we control for a possible effect of the second longest director. Results indicate the absence of a significant relationship.

The existence of a quadratic relationship between the tenure of LT directors and performance implies that there is a theoretical "optimal" tenure that maximizes performance. Such optimal tenure could be identified by solving the regression equation for the tenure that maximizes the estimated performance. This would be a theoretical result that, while of interest, would be prone to severe limitations in its interpretation being conditional on keeping all the covariates at their mean value. In Table 6 we provide an alternative approach estimating the performance regressions for different tenure brackets.

INSERT TABLE 6 HERE

Following this approach we identify the empirically observed optimal tenure. In Model (1) we adopt 5 years brackets with the 1-5 bracket being the baseline (intercept) whereas in Model (2) we select 10 years intervals with the 1-10 bracket as a baseline. Results indicate that performance is increasing in the tenure of the LT director and maxes out in the 21-25 years tenure bracket which provides further support to the selection of 20 years as the cutoff for the LT discrete measure. While the abnormal performance effect decreases for longer tenure, it becomes not significantly different from zero only for tenures in excess of 35 years.

#### **4.1.1 Endogeneity**

Previous results strongly support our main hypothesis, i.e. that the extended tenure of typically one director is positively related with performance. A feature of our design is that it is, by construction, less affected by endogeneity problems. Results obtained by adopting unconditional average board tenure measures are, in fact, potentially more affected by reverse causality: highly performing companies could be more likely to preserve a "*status quo*" leading to endogenously longer tenures across all (independent)

board members. This effect would be reinforced by board members' limited incentives in leaving the board of a successful company. Conversely, poorly performing firms might find it more difficult to retain directors in general, and high quality ones in particular. In our design, this source of endogeneity is not immediately detectable: first, the average tenure of independent board members in Treatment and Control companies is the same when we exclude LT directors. Second, there are no obvious reasons why an increase in performance should provide a single director enough bargaining power to "force" her/his retention. However, in order to fully rule out such a problem we perform a number of endogeneity tests.

Addressing endogeneity in corporate finance is complicated because natural experiment tests are generally difficult to apply for lack of adequate events. Past studies on the effects of directors on performance (e.g. Nguyen and Nielsen 2010, 2014) have exploited the sudden death of directors as a natural experiment to control for endogeneity. However, we failed in following this approach due to the extremely low number of sudden deaths of long tenured directors. In the absence of a clean experiment an alternative strategy is to look at instruments for the explanatory variable of interest that are uncorrelated with the error term. We choose as an instrument of long tenure the age at which directors that eventually become long-tenured have been hired. Recalling that we defined long tenures for descriptive purposes as those in excess of 20 years and that our data show tenures extending beyond the 40 years threshold, it must be that long tenured directors have been hired at a relatively young age. More importantly, non long-tenured directors exhibit a mean tenure of about 7 years which suggests that their hiring age should be uncorrelated with the length of tenure. We finally motivate the choice of our instruments pointing out that the hiring age is uncorrelated with performance and, especially for LT, significantly distant from the time of measurement of the firm performance.

Following our selection of the instrumental variable (IV) we re-run our main regression as a 2-stage least square.

Results are reported in Table 7.

INSERT TABLE 7 HERE

Column 1 reports results for the first stage regression that indicate that our IV is strongly correlated with our main explanatory variables. The F-test is well above the indicative critical value (10) for weak instruments and the (unreported) Stock-Yogo 10% level which allows us to conclude that our instruments are relevant and valid. Column 2 shows the second stage OLS regression where we replace the linear and quadratic version of the main explanatory variable with their first-stage estimates. Results are qualitatively similar to those obtained in the OLS regressions reported in Table 5 and confirm the positive effect of tenure length by a single, long-tenured director on performance. Interestingly, the parameter for the average board tenure remains negative but turns significant at the conventional levels corroborating the view that average long tenures at best do not add value and are likely detrimental to firms' performance. Further, we support our argument that the average tenure across all independent board member is a misleading variable. The Durbin-Watson test provides only mild evidence of differences in the parameter estimates between the OLS and IV regressions which indicates that our prior conclusions are largely not driven by endogeneity concerns.

As an additional robustness test for the choice of our instrumental variable, we have run a placebo 2-stage regression instrumenting the average board tenure (excluding the LT director) with the directors' average hiring age. Similarly to results in table 5, if only the tenure of the longest serving director is related with firm performance we should observe a lack of predictive power of the average tenure of all director also when

instrumenting the explanatory variable. Results are reported in columns 3 and 4. The instrument is significant with similar parameter but lower statistical power. However, the second stage regression shows an insignificant relationship with firm performance and an insignificant Durbin test of endogeneity, indicating the absence -in both directions - of a causal relationship between average tenure and performance. These results further validate the robustness of the IV selection.

As a final set of additional robustness test, following Flannery and Hankins (2014) and Wintoki et al. (2012) we controlled for the dynamic nature of the relationship between board characteristics and performance by running a dynamic fixed-effects OLS that incorporates lagged terms of the dependent variable and a system GMM regression. Results are reported in the appendix and support our prior conclusions.

Overall, our qualitative and quantitative endogeneity tests rely on different assumption sets but provide converging conclusions which we believe supports the robustness of our main results.

#### **4.1.2 Selectivity**

Anderson and Reeb (2003) showed that family firms consistently outperform their peers. Family firms are defined as firms with a founding family member who is a board member, officer or large stockholder. While the independence requirements of directors prevent them to fall into any of the Anderson and Reeb (2003) classification categories it is still possible that family firms exhibit a tendency to retain directors longer than usual or that some important family connections go undetected. In such case our results would simply replicate the already highlighted superiority of family firms.<sup>6</sup> We address this concern by controlling whether any firm in our sample qualifies as a family firm using data from David Reeb's website.

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<sup>6</sup>We thank David Yermack for this insightful suggestion.

Our results show that tenure characteristics are almost identical across the two samples and that the overlap between family firms and LT firms is limited with only 27% of the firms qualifying as a family firm. However, the partial overlap may still be a source of bias, in particular because we lose more than one third of the observations due to missing firms in Reeb’s database. We therefore extend our main regression by introducing a control for whether the firm is classified as a family firm or not. We introduce this control both in isolation and in interaction with the main explanatory variables.

INSERT TABLE 8 HERE

Results reported in table 8 show that our long tenure variable sign, magnitude and significance is unchanged both in linear and quadratic term. However, while the family firm dummy is *per se* not significant, it becomes relevant in interaction with the long tenure variable. Parameters signs are flipped but magnitude is very similar indicating that family firms absorb the positive effect on performance of long tenured directors. This result is not surprising in the light of prior results (e.g. Anderson and Reeb, 2003; Villalonga and Amit, 2006) that show that family firms disproportionately rely on family members as executives and tend to appoint entrenched directors.

## 4.2 Value creation channels

Our previous results show that LT directors are associated with superior firm performance. We have hypothesized that such effect is mainly driven by superior information acquisition and processing. Since information flows are not directly observable, testing these hypotheses requires looking at indirect effects.

### 4.2.1 Information acquisition

Recent regulation changes have required US listed companies to increase the number of outside directors. Exploiting this exogenous shock, Duchin et al. (2010) shed light on the effects of board independence on firm performance. Their main finding is that board independence has mixed effects on firm performance and the results are strongly driven by the cost of acquiring information. They develop an appropriate measure of information acquisition costs (Infoscore) and show that when costs are low board independence increases significantly firm value. However, when the cost of acquiring information is high, an increase in the fraction of outside directors of 10% (roughly one additional member) reduce Tobin's Q by about 15%. Duchin et al. (2010) argue that when information acquisition costs are high, independent directors fail to properly understand threats and risks (both internal and external). Ultimately they are not timely in taking decisions and selecting the optimal courses of action with a consequent reduction of the firm value.

Duchin et al. (2010) arguments present close similarities with the "management friendliness" hypothesis of negative effects on performance of excessively long tenures by outside board members. A related implication is therefore that the negative effects of long tenure should be increasing in the cost of information acquisition: firms with high information acquisition costs and long tenured directors should experience comparatively lower performance than firms with similarly long tenured directors but low information acquisition costs.

We test this hypothesis by running the following regression:



$$\begin{aligned}
Q_{i,t} = & \alpha + \beta_1 MaxTenureDirector + \beta_2 MaxTenureDirector^2 + \\
& \beta_3 DuchinInfoScore + \beta_4 MaxTenureDirector \times DuchinInfoScore + \\
& + \beta_4 MaxTenureDirector \times DuchinInfoScore^2 + \\
& + \Phi BoardControls + \Gamma Controls + \theta + \tau + \epsilon
\end{aligned} \tag{2}$$

where:

- $Q_{i,t}$  is the Tobin's Q of firm  $i$  at time  $t$
- $DuchinInfoScore$  is a variable measuring the cost of information acquisition that ranges from 0 (low cost) to 1 (high cost).
- $BoardControls$  and  $Controls$  are the controls adopted in the main regression.
- $\theta, \tau$  are industry and year fixed effects, respectively

Results are reported in Table 9.

INSERT TABLE 9 HERE

The positive non-linear relationship between LT director tenure and Tobin's Q is confirmed in all specifications. The Duchin Info Score is, as expected negative and significant, confirming the results in Duchin et al. (2010). However, the parameter estimates of both the linear and the quadratic interaction terms are insignificant. We thus reject the hypothesis that an extended tenure by one director affects his/her incentives and/or effectiveness in monitoring the firm, conditional and unconditional on the cost of acquiring information, ultimately reducing firm performance.

### 4.2.2 External threats

**Litigation** As documented by an extensive body of literature (Gande and Lewis, 2009; Karpoff et al. 2008, among others) firm performance is severely affected by corporate scandals and outside litigation. Additionally, Brochet and Srinivasan (2012) show that corporate scandals have non-trivial effects on independent directors who face an eleven percent unconditional likelihood of being named as defendants in the lawsuit against the firm in which they serve. A natural channel through which directors may foster performance and reduce reputational and personal risks is by protecting the firm from corporate malpractices and outside threats. This argument is aligned with initial evidence by Beasley (1996) who showed a negative association between directors' tenure and the likelihood of financial statements fraud. We test this conjecture by collecting data from the Stanford Security Class Action Clearinghouse on security class actions filed against US listed companies. Over the full sample period we document 813 SCAS filed on companies in our sample over a total of 17,646 firm-year observations. Following our classification we perform a logit regression estimating the likelihood of a company to be sued in a security class action conditional on our main explanatory variable long tenure.

INSERT TABLE 10 HERE

Results reported in Table 10 support our intuition: firms with LT directors are less likely to be involved in a corporate scandal as measured by the filing of a shareholder initiated security class action. The odds ratios show that for a one year increase in the tenure of the longest serving director, the company experiences a 3% lower litigation risk. This effect moderately fades away as captured by the quadratic term. The other controlling variable are aligned with existing results and indicate that firms in risky industries (such as, high-tech, pharma, etc.) and firms that experienced large swings

in stock prices are more likely to be sued.

**Investor activism** Several studies (Brav et al., 2008; Brav, Jiang, and Kim, 2015; Bebchuk, Brav, and Jiang, 2014; Brav et al., 2014; Gantchev, Gredil, and Jotikasthira, 2014) documented that that activist hedge funds target underperforming companies. Their intervention is met with abnormal target returns, triggers changes in the governance structure that ultimately lead to higher performance and more innovation. If our main relationship between firm performance and LT is spurious or endogenous then LT directors we should observe a higher likelihood of LT firms being target of an activist motion. We collect data on activist events from Capital IQ from 2002 (the start date in CapitalIQ) to 2012. We restrict our analysis to 7 event codes: Activist Request / Demands Target; Activist Letter to Target; Communication to Employees by Target; Declaration of Voting Results - 10Q / 13D / Any SEC form; Confidentiality Agreement; Nomination Agreement; Supporting statement to Target by Third Party. We identify 215 activist events and 50 of these are classified as board related i.e. regarding motions specifically targeted at altering the composition or governance rules of the board of directors. Despite its small size, this subset of motions is particularly relevant because, if LT directors are detrimental to firm value, activist investors should very likely campaign to replace them.

INSERT TABLE 11 HERE

Results reported in table 11 show that LT firms are significantly less likely to be target of activist motions thus supporting the view that the long tenure of a single director is not detrimental to firms. Differently, firms with LT directors in their boards are (at the mean) roughly 2% less likely to be target of an activist motion. More importantly, this evidence is about 2.5 times larger for motions specifically focused on changing or modifying the board structure and composition.

### 4.2.3 Information processing: directors trading

Ravina and Sapienza (2010) in their study on the returns of directors trades, show that inside directors purchases outperform the market obtaining a large and significant buy-and-hold abnormal return (BHAR) of 13.6%. Insiders sales generate a lower, but positive and significant 1.26% abnormal return. On the contrary, outside director trades underperform insiders by more than 5% on purchases and by 1.3% on sales. LT directors are, by construction, independent directors and their insider trades should therefore exhibit similar returns. However, our previous test suggests that LT directors seem to possess, acquire or process information in a way that adds value to the company. If so, it is reasonable to expect that their insider trades, driven by superior information yield positive abnormal returns. In order to test this hypothesis we collect insiders trades data from Thomson Insider Filing Data. We merge trades with directors data and classify trades into three groups: insiders, independent and LT directors. Our testing strategy is two-fold. First, since the Ravina and Sapienza datasets spans from 1986 to 2003, we replicate the base specifications of their study to ensure that their main findings hold on our sample window (1998-2012). Following Ravina and Sapienza (2010) argument that firm fixed-effects may generate inconsistent predictions, we test both with and without firm fixed effects, but we ultimately present results of the tests without fixed effects. As in their study, the qualitative results are not meaningfully affected. Second, we isolate trades by independent directors and we compute differential returns between outside directors and LT directors. Our results are reported in Table 12.

INSERT TABLE 12 HERE

Panels A1 and B1 report the results of the replication tests for respectively purchases and sales. Looking at the reference window, BHAR 180, we largely confirm Ravina and Sapienza findings: director purchases generate a 14.9% abnormal return (vs. 13.7%)

and independent directors underperform by about 2% points. Our results are not significant on this window but they are on shorter windows.

Looking at sales we obtain evidence of small but positive returns for all directors (3.8% vs. 1.26%). Differently from Ravina and Sapienza (2010), independent director trades do not generate abnormal returns significantly different from zero. Panel A2 and B2 present results for our main test. The constant captures the return of all independent directors, while our main variable of interest is an indicator variable that identifies long tenured directors. Long tenure directors obtain significantly higher returns when purchasing their own firm stocks than the other independent directors. This leads to a staggering 22.7% estimated return on the six-months window that outperforms also returns on trades by inside directors. Looking at the sales we still observe significant results although the unconditional return for independent directors is negative by 5.9%. We attribute this difference with the Ravina and Sapienza (2010) results to the meaningful difference in the sample period and sample size when looking at trades by independent directors only. However, Similarly to the previous result on purchases, LT directors experience a positive abnormal return on sales. The estimated 5.6% BHAR offsets the negative unconditional return yielding a net return on sales of zero.

These findings strongly support the view that LT directors efficiently obtain and process information and that this leads to optimal timing in their insider trades.

## **4.3 Long tenure determinants**

### **4.3.1 Demographics**

These results show that LT directors are meaningful components of firms and can contribute to create long term stakeholders value. A related still unanswered question is whether there are individual characteristics that make directors particularly valuable to

firms or rather the observed effects are just the mechanical consequence of the extension of tenure length. In the following we attempt at providing some preliminary answers to this question.

In table 13 we begin by testing the demographic characteristics of LT and non-LT directors. We identify LT directors using the discrete measure described in section 2.

INSERT TABLE 13 HERE

Figures show significant differences between the two classes of directors and suggest that long tenures are at least partially the result of observable individual characteristics. In particular LT directors are more likely to have attended an Ivy League school (38.9% vs. 30.9%), to have a Ph.D. (5.1% vs. 4%) and to have attended Law School (15.2% vs. 10.7%). They are also more likely to hold a CFA (1% vs. 0.8%) but less likely to have a CPA (8.3% vs. 11.9%). The BoardEx Network measure indicates smaller network size of LT directors vs. the average independent director but this may be related to a measurement bias given that the measure overweights the recent years.

#### **4.3.2 Multiple board appointments**

These professional characteristics seem to suggest that board members are in general sought after based on objective measures of quality and that this holds more strongly for LT directors. What is unobservable at this stage is whether, keeping their observable professional qualifications constant, LT directors were distinguishable from their peers at the beginning of their careers. We address this issue by looking at the evolution of board membership of directors during their careers. If individuals who eventually become LT directors have personal traits that the market considers valuable over and beyond their professional qualifications, then firms should compete for their skills and appoint them more often. As a result, early on in their careers, future LT directors

should serve on multiple boards more often than the average board member. Over time though, if the value of LT directors stems from the close relationship with the firm as our result indicate, we should observe a decrease in multiple memberships.

We test this conjecture by identifying directors who qualify as LT at the end of 2012 and backtracking their board appointments to 1998. We present comparative statistics between LT and non-LT directors based on the discrete measure described in section 2. As a complement to this descriptive analysis we run a regression analysis of the following form:

$$N_{i,t} = \alpha + \beta_1 Tenure + \beta_2 LT\_2012 + TenureXLT\_2012 + \theta + \tau + \epsilon \quad (3)$$

where:

- $N_{i,t}$  is the number of board appointments of director  $i$  at time  $t$
- $Tenure$  is the director tenure.
- $LT\_2012$  is a dummy variable that indicates whether director  $i$  satisfies the LT director definition in 2012.
- $\theta, \tau$  are industry and year fixed effects, respectively

Results are reported in Table 14 and in Figure 1 and provide some interesting intuitions.

INSERT TABLE 14 AND FIGURE 1 HERE

Looking at Panel A, consistently with the conjecture that LT directors are characterized by a complex set of hard and soft skills we show that, early in their careers they served in about 40% more companies than non-LT directors (1.257 board membership vs. 0.908,  $p < 0.001$ ). This difference declines over time, interestingly becomes not

significantly different from zero around 20 years of uninterrupted service - i.e. when the director becomes LT - and then turns negative and significant supporting the idea that a close relationship with the firm is increasingly valuable. These results (restricted to the significant differences) are plotted in Figure 1 and show a surprisingly linear and negatively sloped relationship. Similarly, regression results reported in Panel B show a significant and economically relevant correlation: a random director serve in 1.088 boards but the LT dummy is positive and significant indicating more board membership for LT directors. The interaction term is negative and indicates that 10 years of tenure in the same firm reduce the number of board membership of the average LT director by 0.2 in absolute term or 20% of the unconditional mean.

### **4.3.3 Multiple boards performance**

Our evidence indicate that a prolonged relationship between the firm and one of its independent directors adds value to the firm. Given that independent directors often serve in multiple boards, if LT directors value creation effect is driven by superior skills, we should observe a positive effect on the performance of companies where the LT director is also a board member. We address this question by regressing the tenure of one LT director in one firm on the performance of a second firm where the same LT director is also a board member. As in our main test we model this variable in a linear and quadratic form.

INSERT TABLE 15 HERE

The results reported in Table 15 show a mild positive (linearly) but decreasing (quadratic) effect on performance which support the view that the length of the tenure of LT directors is a signal that allows other firms to select some board members based on their ability which is generally unobservable. The relatively weaker significance



is largely motivated by the shorter tenure on the second company (essentially all LT directors classify as long tenured in one firm only) which shorten the time span over which the effects on performance can be observed.

#### **4.3.4 LT directors and Lead Independent Directors**

Following the wake of corporate scandals in the early 2000, several regulation changes have called for further separation of executive and independent board members. Firms have responded in several ways, including election of a Lead Independent Director (LID). i.e. an independent director that acts as leader of the independent board members and that has some explicit, sometimes, powerful responsibilities. While only a handful of companies had nominated a LID in the early 2000, over a thousand had elected one by the end of the decade. Lamoreaux et al. (2015) are the first to look at the LID role and show that the presence of a lead independent director is associated with an improved information environment for the board that translates into superior performance and monitoring. Lamoreaux et al. (2015) do not explore the determinants of the election of a director to the role of LID. However, if long tenured directors are skilled individuals that store valuable information about the company, LT directors should be more likely to be elected as LID. In Table 16 we report the results of OLS regressions estimating the relationship between LID election and directors' characteristics.

INSERT TABLE 16 HERE

Results strongly support our conjecture showing that a representative LT director with an age of 60 and 20 years of tenure is almost 20% more likely to be elected as LID. The likelihood increases with the length of the tenure and is also positively associated to other measures of directors' skills such as being part of the audit or compensation committees or sitting in multiple boards.

## 5 Conclusions

A recent GMI survey highlights that 24% of independent directors in Russel 3,000 have continuously served in the same firm for fifteen years or more. Are these lengthy tenures of outside directors detrimental to the companies performance? A growing number of countries believes that this is the case and has introduced ad-hoc corporate governance rules capping the maximum tenure of a director in order to qualify as independent between nine and twelve years. In this paper we show that while an increase in the average tenure of all independent members does not materially impact performance, the presence of a director with very long tenure (LT director) is beneficial to his/her company and translates into superior performance, lower risk of outside litigation and higher information acquisition and disclosure. We believe that long tenures allow directors to acquire and retain information about the company that new or recently appointed outside directors may fail to obtain. Additionally, a long tenure allows to accumulate information about past events in the firm and about responses to exogenous market shocks that help weathering crises and discontinuities. We test our hypotheses on a sample of S&P 1500 firms over the period 1998-2012 (excluding utilities and financial services). The use of US data offers the advantage that currently there are no limits to tenure length, therefore results are unaffected by exogenous changes. Our findings show a strong and significant quadratic relationship between the tenure of the longest serving director and firm performance measured by the Tobin's Q. Jointly testing the main variable and the average tenure of the independent board members clearly indicates that any effect attributable to the average board is fully absorbed by the longest serving director. LT directors generate value by acquiring and processing information that eventually benefits the firm. We provide evidence of this contribution by showing the insensitiveness of LT directors to the cost of information acquisition in a set of tests modelled following the Duchin et al. (2010) research design. Such superior infor-

mation and skills appear meaningful also in protecting firms from outside litigation. In our tests we show that LT director firms have a significantly lower probability of being involved in a corporate scandals as measured by being sued in a security class-action. Supporting our main conjecture, we show that market participants can observe such information advantage by monitoring LT directors trade that generate abnormal returns aligned with those of insiders. Given the economic significance of the effects documented in our tests, we provide evidence on the determinants of long tenures. Looking at directors personal characteristics and career we show that LT directors are characterized by superior professional profiles and that early on in their careers they appear to be actively sought after by firms. Firm benefits from LT directors multiple appointments because LT directors value spills over also on firms in which s/he contemporaneously is an independent but non-long-tenured board member. Such positive effects are further supported by the disproportionately higher probability of LT directors to be appointed as Lead Independent Director, a role that has become increasingly prominent and correlated with superior governance and performance.

Our results are suggestive of a critical and overlooked role played by LT directors that explains their surprisingly large presence across firms. We believe that the recognition of this role is crucial in designing regulation that imposes unconditional limits on the tenure of outside directors.

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Table 1  
Descriptive statistics - Full sample

The sample is obtained from Risk-metrics and is given S&P1500 firms from 1998 until 2012. Financial services (SIC from 4900 to 4999) and utilities (SIC from 6000-6999) were eliminated. The descriptive statistics show the difference between the board tenure of the independent director with the longest tenure and the average board tenure of all of the independent directors.

Variable	N	Mean	Std Dev	Minimum	25th Pctl	Median	75th Pctl	Maximum
Max Tenure of Indep Directors	14,740	15.85	8.04	1.00	10.00	15.00	20.00	58.00
Avg Tenure of Indep Directors	14,740	7.67	3.46	0.25	5.29	7.20	9.43	29.33
Standard Deviation of Independent Directors Tenure	14,740	5.47	3.08	0.35	3.30	4.98	7.01	23.60
Avg Tenure of Inside Directors	14,740	10.21	7.83	0.00	4.00	8.00	14.00	51.50
CEO age	14,740	55.92	7.39	31.00	51.00	56.00	61.00	97.00
CEO ownership $\geq 20\%$	14,740	0.04	0.19	0.00	0.00	0.00	0.00	1.00
CEO-chair	14,740	0.60	0.49	0.00	0.00	1.00	1.00	1.00
CEO tenure on board	14,740	10.58	9.30	0.00	4.00	8.00	15.00	61.00
Fraction of Independent	14,740	0.71	0.15	0.13	0.62	0.75	0.83	0.94
Busy Board	14,740	0.02	0.15	0.00	0.00	0.00	0.00	1.00
Blockholder on Board	14,740	0.10	0.31	0.00	0.00	0.00	0.00	1.00
Board Size	14,740	9.10	2.26	3.00	7.00	9.00	11.00	21.00
$\log(1 + \text{FirmAge})$	14,740	3.14	0.64	1.10	2.64	3.14	3.71	4.16
$\log(\text{Assets})$	14,740	7.51	1.50	2.64	6.45	7.35	8.43	13.59
R&D/Sales	14,740	0.08	2.01	0.00	0.00	0.00	0.05	237.86
EBITDA/lagTA	14,740	0.16	0.10	-0.13	0.10	0.15	0.21	0.50
Staggered Board	14,740	0.56	0.50	0.00	0.00	1.00	1.00	1.00
Standard Deviation of Daily Returns over Past Fiscal Year	14,740	0.03	0.01	0.01	0.02	0.03	0.03	0.19



Table 2  
Board characteristics

In this table we present board characteristics of firms with and without a long tenured directors. For preliminary analysis we adopt a discrete cutoff identifying a treatment group of Long Tenured director firms as firms where at least one independent directors has continuously served for 20 or more years. The control group is given by firms that never had a long tenured director as defined by a tenure of 20 or more years. \*\*\*, \*\*, and \* indicate significance at the 1%, 5%, and 10% level, respectively.

	Treatment	Control	Difference
Average board size	9.87	9.22	0.65***
Average # of independent directors	8.45	7.81	0.64***
Average # of Gray directors	0.75	0.36	0.39***
Average directors age	63.84	62.25	1.59***
Average directors tenure (excluding LT)	9.44	7.55	1.89***
% of LT firms	25.22%	-	
Mean(Median) number of LT directors	1.42(1)	-	
% of firms with N=1 LT directors	66.11%	-	
% of firms with N=2 LT directors	92.73%	-	

Table 3

Descriptive statistics: Treatment and control groups

In this table we present descriptive statistics on characteristics of firms with and without a long tenured directors. For preliminary analysis we adopt a discrete cutoff identifying a treatment group of Long Tenured director firms as firms where at least one independent directors has continuously served for 20 or more years. The control group is given by firms that never had a long tenured director as defined by a tenure of 20 or more years. In the matched sample we compare treatment and control firms after matching on firm age, size and industry. \*\*\*, \*\*, and \* indicate significance at the 1%, 5%, and 10% level, respectively.

Panel A - Unmatched Sample

Variable	Treatment					Control						
	N	Mean	Median	Std Dev	25th Pctl	75th Pctl	N	Mean	Median	Std Dev	25th Pctl	75th Pctl
AGE Compustat	4005	28.78***	25.00	15.36	16.00	41.00	7245	26.45	21.00	16.54	13.00	40.00
Tobin's Q	4005	2.03***	1.62	1.26	1.23	2.33	7245	1.93	1.56	1.21	1.16	2.25
EBITDA/lagTA	4005	0.18***	0.17	0.10	0.12	0.23	7245	0.16	0.15	0.12	0.10	0.22
Total assets	4005	7,604.99	1,278.44	41,560.83	523.03	3,851.41	7245	7,115.62	1,271.86	21,387.68	451.70	4,293.60
R&D/Sales	4005	0.044***	0.001	0.07	0.00	0.04	7240	0.036	0.002	0.08	0.00	0.05
Market Equity	4004	9,919.44	1,604.67	34,179.97	582.84	5,024.86	7236	9,033.07	1,304.03	30,118.17	501.65	4,670.59

Panel B - Matched Sample

Variable	Treatment					Control						
	N	Mean	Median	Std Dev	25th Pctl	75th Pctl	N	Mean	Median	Std Dev	25th Pctl	75th Pctl
AGE Compustat <sup>m</sup>	2055	28.30	22.00	17.05	14.00	43.00	2055	28.30	22.00	17.05	14.00	43.00
Tobin's Q	2055	2.08**	1.67	1.30	1.26	2.41	2055	1.99	1.61	1.30	1.18	2.26
EBITDA/lagTA	2055	0.17***	0.16	0.10	0.12	0.22	2055	0.16	0.14	0.12	0.09	0.20
Total assets	2055	9,889.27	1,198.07	57,071.56	494.84	3,469.10	2055	7,947.30	1,844.81	18,732.65	518.22	6,092.00
R&D/Sales	2055	0.055	0.02	0.11	0.00	0.06	2055	0.059	0.02	0.10	0.00	0.10
Market Equity <sup>m</sup>	2054	12,096.51	1,553.90	43,436.01	581.14	4,943.15	2051	13,317.61	1,851.27	40,467.46	588.50	6,206.35

Table 4

Treatment and Control: group yearly performance

In this table we present year-level descriptive statistics on firm performance measured as EBITDA over lagged total assets of firms with and without a long tenured directors. For preliminary analysis we adopt a discrete cutoff identifying a treatment group of Long Tenured director firms as firms where at least one independent directors has continuously served for 20 or more years. The control group is given by firms that never had a long tenured director as defined by a tenure of 20 or more years. In the matched sample we compare treatment and control firms after matching on firm age, size and industry. \*\*\*, \*\*, and \* indicate significance at the 1%, 5%, and 10% level, respectively.

Year	UNMATCHED				MATCHED			
	Treatment EBITDA/TA <sub>t-1</sub>	Control EBITDA/TA <sub>t-1</sub>	Difference	Wilcoxon p- value	Treatment EBITDA/TA <sub>t-1</sub>	Control EBITDA/TA <sub>t-1</sub>	Difference	Wilcoxon p- value
1998	0.195	0.170	0.025***	0.006	0.187	0.210	-0.023	0.335
1999	0.210	0.197	0.013**	0.032	0.208	0.196	0.012*	0.067
2000	0.204	0.194	0.010**	0.044	0.200	0.207	-0.007	0.442
2001	0.174	0.154	0.021***	0.000	0.157	0.147	0.009**	0.030
2002	0.166	0.145	0.022***	0.000	0.144	0.142	0.002*	0.080
2003	0.172	0.148	0.024***	0.000	0.157	0.134	0.024***	0.001
2004	0.179	0.171	0.008**	0.035	0.170	0.155	0.016**	0.011
2005	0.182	0.176	0.006*	0.069	0.171	0.150	0.021***	0.002
2006	0.183	0.176	0.007*	0.052	0.173	0.159	0.014**	0.026
2007	0.181	0.163	0.017***	0.002	0.167	0.142	0.026***	0.003
2008	0.167	0.148	0.019***	0.004	0.159	0.137	0.022***	0.005
2009	0.147	0.122	0.025***	0.001	0.134	0.106	0.028**	0.011
2010	0.173	0.155	0.019***	0.001	0.166	0.149	0.017**	0.043
2011	0.175	0.157	0.018***	0.006	0.168	0.154	0.014**	0.026
2012	0.167	0.149	0.018***	0.002	0.157	0.146	0.011*	0.059
N	267	483			137	137		

Table 5  
Performance and LT director tenure

In this table we present results of OLS regressions of firm performance measured as Tobin's Q on the tenure of the longest serving independent director and its squared term. Additionally, we control for the average tenure of independent directors with and without the longest serving director. CONTROLS is a vector of the following controls: Standard deviation of independent directors tenure, Average tenure of inside directors, CEO age, CEO ownership in excess of 20%, CEO-chairman, CEO tenure on board, Fraction of outside directors, Busy board, Blockholder on board, Board size, Firm age, Total Assets, R&D/Sales ratio, EBITDA/Total assets lagged, Staggered Board, Standard deviation of stock price return in the previous fiscal year. The regression controls for year and industry fixed effects. Standard errors have been clustered alternatively at the firm and industry level without meaningful differences. We report results for industry clustered SE. t-Statistics in parentheses. \*\*\*, \*\*, and \* indicate significance at the 1%, 5%, and 10% level, respectively.

Dependent Variable	(1)	(2)	(3)	(4)	(5)	(6)
	Tobin's Q	Tobin's Q	Tobin's Q	Tobin's Q	Tobin's Q	Tobin's Q
Tenure of LT Indep Director	0.018** (2.142)				0.037*** (-3.37)	0.022** (2.36)
Tenure of LT Indep Director Squared	-0.001** (-2.319)				-0.001*** (-5.02)	-0.001*** (-2.87)
Avg Tenure of Indep Directors		0.033** (2.440)			-0.021 (-0.92)	
Avg Tenure of Indep Directors Squared		-0.001** (-2.015)			0.002* (1.89)	
Avg Tenure of Indep Directors (exc.LT)			0.020 (1.62)			0.010 (0.71)
Avg Tenure of Indep Directors Squared (exc. LT)			-0.000 (-1.15)			0.001 (1.5)
Tenure of 2 <sup>nd</sup> LT Indep Director				0.014 (1.64)		
Tenure of 2 <sup>nd</sup> LT Indep Director Squared				-0.000 (-1.14)		
CONTROLS	YES	YES	YES	YES	YES	YES
Constant	3.027*** (5.911)	2.951*** (5.918)	1.175*** (5.94)	3.073*** (6.03)	1.616*** (6.92)	1.114*** (6.08)
Firm FE?	YES	YES	YES	YES	NO	NO
Year FE?	YES	YES	YES	YES	YES	YES
Firm&Year SE?	YES	YES	YES	YES	YES	YES
N	14,740	14,740	14,740	14,740	14,740	14,740
R <sup>2</sup>	31.50%	31.45%	31.39%	31.50%	32.30%	31.63%

Table 6

## Performance and LT director tenure brackets

In this table we present results of OLS regressions of firm performance measured as Tobin's Q on several tenure brackets. . CONTROLS is a vector of the following controls: Standard deviation of independent directors tenure, Average tenure of inside directors, CEO age, CEO ownership in excess of 20%, CEO-chairman, CEO tenure on board, Fraction of outside directors, Busy board, Blockholder on board, Board size, Firm age, Total Assets, R&D/Sales ratio, EBITDA/Total assets lagged, Staggered Board, Standard deviation of stock price return in the previous fiscal year. Standard errors have been clustered alternatively at the firm and industry level without meaningful differences. We report results for industry clustered SE. t-Statistics in parentheses. \*\*\*, \*\*, and \* indicate significance at the 1%, 5%, and 10% level, respectively.

Dependent Variable	(1)		(2)	
	Tobin's Q		Tobin's Q	
	Parameter	t-stat	Parameter	t-stat
LT director tenure between 6-10	0.194**	(2.31)		
LT director tenure between 11-15	0.285***	(2.81)		
LT director tenure between 15-20	0.309***	(2.71)		
LT director tenure between 21-25	0.372***	(2.73)		
LT director tenure between 26-30	0.311***	(2.67)		
LT director tenure between 31-35	0.281**	(2.20)		
LT director tenure between 36-40	0.389***	(2.65)		
LT director tenure between 41-45	0.306	(1.62)		
LT director tenure between 46-50	0.328	(1.59)		
LT director tenure between 51-55	0.006	(0.03)		
LT director tenure between 56-60	-0.212	(-1.08)		
LT director tenure between 11-20			0.115***	(2.79)
LT director tenure between 21-30			0.141**	(2.42)
LT director tenure between 31-40			0.076	(0.93)
LT director tenure between 41-50			0.037	(0.32)
LT director tenure between 51-60			-0.441***	(-2.64)
CONTROLS	YES		YES	
Industry FE?	YES		YES	
Year FE?	YES		YES	
Industry Clustered SE?	YES		YES	
N	15,082		15,082	
$R^2$	31.37%		31.20%	

Table 7

## Instrumental Variable regression

In this table we present results of an Instrumental Variable regression to control for endogeneity where we instrument the potentially endogenous variables Tenure of LT indep director (linear and squared) with Hiring age of LT director that captures the age of the LT director when he's been hired by the firm in which he eventually becomes LT. Column 1 reports results for the first-stage regression, Column 2 for the Instrumental Variable regression. The dependent variable in the first stage regression is Tenure of LT Independent Director, while the dependent variable in the IV regression is firm performance measured as Tobin's Q. Control variables are the average tenure of independent directors without the longest serving director, CEO age, CEO ownership in excess of 20%, CEO-chairman, CEO tenure on board, Fraction of outside directors, Busy board, Blockholder on board, Board size, Firm age, Total Assets, R&D/Sales ratio, EBITDA/Total assets lagged, Staggered Board, Standard deviation of stock price return in the previous fiscal year. We report Durbin test for endogeneity and the weak instrument F-test. All regressions include firm and year fixed-effects. Standard errors are clustered at the firm level. \*\*\*, \*\*, and \* indicate significance at the 1%, 5%, and 10% level, respectively.

Dependent Variable	Instrumenting LT director tenure		Placebo test Instrumenting non-LT directors tenure	
	First stage regression	IV regression	First stage regression	IV regression
	Tenure of LT Indep Director		0.151*** (2.29)	
Tenure of LT Indep Director Squared		-0.023** (-2.28)		
Hiring age of LT Director	-0.535*** (-8.04)			
Hiring age of LT Director Squared	0.004*** (6.96)			
Hiring age of Independent Directors (excl. LT)			-0.514*** (-2.96)	
Hiring age of Independent Directors (excl. LT) Squared			0.004** (2.35)	
Avg Tenure of Indep Directors (excl. LT)		-0.111* (-1.75)		-0.120 (0.37)
Avg Tenure of Indep Directors (Excl. LT) Squared		0.003 (1.59)		-0.003 (-0.19)
CONTROLS	YES	YES	YES	YES
Firm FE?	YES	YES	YES	YES
Year FE?	YES	YES	YES	YES
Firm Clustered SE?	YES	YES	YES	YES
N	14,470	14,470	14,470	14,470
$R^2$	31.73%		31.73%	
First stage F-test	89.87		23.38	
Durbin test for endogeneity		5.459*		3.670

Table 8  
Family Firms

In this table we control whether firms with Long tenured directors qualify as Family Firms as described in Anderson and Reeb (2003). Panel A presents descriptive statistics of independent directors in family vs non-family firms (standard error in parentheses). Panel B presents results of our main regression in Table 5 introducing a family firm dummy equal to 1 if the firm is classified as a family firm according to David Reeb's web archive. We estimate the dummy in isolation and in interaction with our main explanatory variables. Control variables are the average tenure of independent directors without the longest serving director, CEO age, CEO ownership in excess of 20%, CEO-chairman, CEO tenure on board, Fraction of outside directors, Busy board, Blockholder on board, Board size, Firm age, Total Assets, R&D/Sales ratio, EBITDA/Total assets lagged, Staggered Board, Standard deviation of stock price return in the previous fiscal year. All regressions include firm and year fixed-effects. Standard errors are clustered at the firm level. \*\*\*, \*\*, and \* indicate significance at the 1%, 5%, and 10% level, respectively.

PANEL A		
	AR (2003) non family firm	AR (2003) family firm
Firm-year observations	6,136	2,345
75th percentile Longest tenure (years)	20	20
Average directors tenure (excluding LT)	10.59 (0.073)	10.72 (0.136)
PANEL B		
Dependent Variable	Tobin's Q	
Tenure of LT Indep Director	0.029** (2.10)	
Tenure of LT Indep Director Squared	-0.001** (-2.19)	
Family Firm	0.065 (0.42)	
Tenure of LT Indep DirectorXFamilyFirm	-0.025* (-1.66)	
Tenure of LT Indep Director SquaredXFamilyFirm	0.001* (1.78)	
CONTROLS	YES	
Constant	3.421*** (5.04)	
Firm FE?	YES	
Year FE?	YES	
Firm Clustered SE?	YES	
N	8,391	
$R^2$	29.11%	

Table 9

## Information environment and LT directors

In this table we test the impact of the information environment on the effectiveness of long-tenured directors. As a measure of information quality we use Duchin et al. (2010) info score. CONTROLS is a vector of the following controls: Standard deviation of independent directors tenure, Average tenure of inside directors, CEO age, CEO ownership in excess of 20%, CEO-chairman, CEO tenure on board, Fraction of outside directors, Busy board, Blockholder on board, Board size, Firm age, Total Assets, R&D/Sales ratio, EBITDA/Total assets lagged, Staggered Board, Standard deviation of stock price return in the previous fiscal year. All regressions include firm and year fixed-effects. Standard errors are clustered at the firm level. \*\*\*, \*\*, and \* indicate significance at the 1%, 5%, and 10% level, respectively.

Dependent Variable	(1) Tobin's Q	(2) Tobin's Q	(3) Tobin's Q
Tenure of LT Indep Director	0.025*** (2.58)	0.023** (2.37)	0.023** (3.67)
Tenure of LT Indep Director Squared	-0.001*** (-2.75)	-0.001*** (-2.57)	-0.001*** (-2.69)
Duchin Info Score		-1.655*** (-10.39)	-1.651*** (-10.48)
Tenure of LT Indep Director x Duchin Info Score			0.017 (0.35)
Tenure of LT Indep Director Squared x Duchin Info Score			-0.000 (-1.83)
CONTROLS	YES	YES	YES
Constant	1.900*** (16.35)	1.789*** (15.46)	1.792*** (15.37)
Year FE?	YES	YES	YES
Firm FE?	YES	YES	YES
Firm Clustered SE?	YES	YES	YES
N	10,197	10,197	10,197
R <sup>2</sup>	34.90%	36.20%	36.30%



Table 10

## Litigation probability and LT Director Tenure

In this table we investigate the probability of class-action lawsuits against the company conditional on the tenure of the longest serving director. We use class action lawsuits in Stanford University's Securities Class Action Clearinghouse database. We use a logit model, where the dependent variable is a dummy variable indicating whether there was a class action lawsuit against the firm during that year. We use control variables shown to be significant in Kim and Skinner (2012). Chi-squared statistics in parentheses. \*\*\*, \*\*, and \* indicate significance at the 1%, 5%, and 10% level, respectively.

	Coefficient	Odds ratio (+/- 1 unit)
Tenure of LT Indep Director	-0.045*** (7.57)	0.956
Tenure of LT Indep Director Squared	0.001** (4.23)	1.001
Log(Total Assets <sub>t-1</sub> )	0.221*** (66.40)	1.247
Risk Industries	0.311*** (13.76)	1.364
MVE/BVE <sub>t-1</sub>	0.032*** (33.11)	1.033
Sales Growth <sub>t-1</sub>	0.502*** (33.00)	1.651
Return <sub>t-1</sub>	-0.040 (2.61)	0.996
Return Skewness <sub>t-1</sub>	-0.218 (0.32)	0.978
Return Volatility <sub>t-1</sub>	17.66*** (25.19)	18.796
Constant		-5.423*** (260.95)
Year FE		YES
Year Clustered SE		YES
N		14,158
Chi <sup>2</sup>		219.58***

Table 11

## Investors activism and LT directors

In this table we present results of OLS and logit regressions of the likelihood of a firm to be the target of activist investors motions conditional on the the tenure of the longest serving independent director and its squared term. The dependent variable is a dummy that takes value of one if the company is target of the following motions by an activist investor: Activist Request / Demands Target; Activist Letter to Target; Communication to Employees by Target; Declaration of Voting Results - 10Q / 13D /Any SEC form; Confidentiality Agreement; Nomination Agreement; Supporting statement to Target by Third Party. In the restricted sample the dependent variable takes a value of one only for motions related to board nominations. Additionally, we control for the average tenure of independent directors with and without the longest serving director. CONTROLS is a vector of the following controls: Standard deviation of independent directors tenure, Average tenure of inside directors, CEO age, CEO ownership in excess of 20%, CEO-chairman, CEO tenure on board, Fraction of outside directors, Busy board, Blockholder on board, Board size, Firm age, Total Assets, R&D/Sales ratio, EBITDA/Total assets lagged, Staggered Board, Standard deviation of stock price return in the previous fiscal year. The regression controls for year and industry fixed effects. Standard errors have been clustered alternatively at the firm and industry level without meaningful differences. We report results for industry clustered SE. t-Statistics in parentheses. \*\*\*, \*\*, and \* indicate significance at the 1%, 5%, and 10% level, respectively.

Dependent Variable	All activist motions (OLS)	All activist motions (Logit)	Only board related motions (OLS)	Only board related motions (Logit)
Tenure of LT Indep Director	-0.001* (-2.17)	-0.029* (-1.86)	-0.001** (-2.59)	-0.078** (-2.56)
Tenure of LT Indep Director Squared	0.000*** (3.05)	0.001** (2.14)	0.000*** (3.61)	0.001** (2.29)
CONTROLS	YES	YES	YES	YES
Constant	0.014* (1.74)	-4.65*** (-8.02)	0.000 (0.01)	-6.41*** (3,21)
Firm FE?	NO	NO	NO	NO
Year FE?	YES	YES	YES	YES
Year SE?	YES	YES	YES	YES
N	10,936	10,936	10,936	10,936
$R^2$ , Pseudo-R2	1.33%	7.93%	0.49%	9.64%

Table 12

Market-adjusted return of individual director trades

In this table we replicate Ravina and Sapienza (2010) test on independent directors insider trades as a proxy for the knowledge of inside directors and extend them on Long tenured directors. The observations are at the transaction-level, and returns are adjusted by subtracting the raw returns from buying-and-holding the market. In Panel A2, we focus on purchases of independent directors that are able to be matched in RiskMetrics. We compare the buy-and-hold abnormal returns of independent directors with directors that are the longest-serving directors on their firm's board. t-Statistics in parentheses. \*\*\*, \*\*, \* and \* indicate significance at the 1%, 5%, and 10%, respectively.

	Panel A1 - Replication Ravina-Sapienza (2010) on full sample period				Panel A2 - Independent Directors Only					
	BHAR1	BHAR30	BHAR60	BHAR90	BHAR180	BHAR1	BHAR30	BHAR60	BHAR90	BHAR180
Constant	0.007*** (8.85)	0.053*** (13.53)	0.081*** (14.71)	0.093*** (12.66)	0.149*** (9.87)	0.007*** (9.97)	0.0382*** (14.57)	0.068*** (14.38)	0.088*** (14.86)	0.137*** (12.74)
Independent Director	-0.001 (-0.70)	-0.008*** (-2.59)	-0.017*** (-2.80)	-0.014* (-1.91)	-0.017 (-1.12)					
Large Outside Blockholder	-0.002 (-0.83)	-0.016* (-1.62)	-0.039*** (-3.02)	-0.034* (-1.92)	-0.017 (-0.46)					
Max Independent Director						0.002 (1.26)	0.042*** (6.88)	0.014 (1.29)	0.013 (.95)	0.090*** (3.59)
Firm Fixed Effects	YES	YES	YES	YES	YES	NO	NO	NO	NO	NO
SE Clustered by Firm	YES	YES	YES	YES	YES	NO	NO	NO	NO	NO
Observations	222,616	221,814	220,896	220,110	216,760	8,879	8,873	8,862	8,844	8,735
Adjusted R <sup>2</sup>	0.000	0.001	0.006	0.005	0.004	0.000	0.005	0.000	0.000	0.001
	Panel B1 - Replication Ravina-Sapienza (2010)				Panel B2 - Independent Directors Only					
	BHAR1	BHAR30	BHAR60	BHAR90	BHAR180	BHAR1	BHAR30	BHAR60	BHAR90	BHAR180
Constant	0.003*** (23.31)	0.009*** (10.4)	0.016*** (12.27)	0.022*** (11.41)	0.038*** (11.37)	-0.004*** (-34.07)	-0.023*** (-49.06)	-0.040*** (-59.58)	-0.035*** (-47.87)	-0.059*** (-47.33)
Independent Director	-0.001 (-1.09)	0.002 (0.99)	0.004 (1.22)	0.004 (0.82)	0.005 (0.80)					
Large Outside Blockholder	-0.001 (-0.81)	0.016*** (2.86)	0.026*** (3.26)	0.037*** (3.12)	0.089*** (4.09)					
Max Independent Director						-0.001 (-0.75)	0.012*** (10.42)	0.032*** (20.36)	0.036*** (18.84)	0.056*** (19.49)
Firm Fixed Effects	YES	YES	YES	YES	YES	NO	NO	NO	NO	NO
SE Clustered by Firm	YES	YES	YES	YES	YES	NO	NO	NO	NO	NO
Observations	1,626,484	1,616,670	1,607,354	1,599,976	1,570,122	79,042	78,993	78,895	78,858	78,400
Adjusted R <sup>2</sup>	0.000	0.000	0.000	0.000	0.001	0.000	0.001	0.005	0.005	0.004

Table 13

## Long Tenure determinants: directors characteristics

In this table we compare demographic characteristics of long tenured directors. We identify Long Tenured directors adopting the >20 years tenure cutoff described in Section 2. The control group is given by all other directors. Ivy League, Business School, PhD, Medical School, Law School General Undergraduate, General Graduate, CFA and CPA are self-explanatory dummies; Directors Network is a continuous measure ranging from X to Y where higher numbers indicate larger network. All variables are obtained from Boardex. Differences are tested through a Wilcoxon Two-sample test. \*\*\*, \*\*, and \* indicate significance at the 1%, 5%, and 10% level, respectively.

Variable	LT	Non-LT	Difference
Ivy League	0.389	0.309	0.080***
Business School	0.470	0.466	0.004
PhD	0.051	0.040	0.011***
Medical School	0.000	0.001	-0.001**
Law School	0.152	0.107	0.045***
General Graduate	0.146	0.187	-0.041***
CFA	0.010	0.008	0.002**
CPA	0.083	0.119	-0.036**
Director Network	490.4	638.8	-148.4***

## Appendix

Table 14

## Long Tenure determinants: skills

In this table we present evidence on the number of outside boards held by LT and non-LT directors. Panel A present summary statistics clustered by length of tenure identifying Long Tenured directors adopting the >20 years tenure cutoff described in tables 2 and control group directors as all directors that never recorded a tenure in excess of the cutoff. Panel B present results of an OLS regression of the number of outside boards on the length of tenure, the tenure of the longest serving director in 2012 and the interaction term. The regression controls for year and industry fixed effects. Standard errors have been clustered alternatively at the firm and industry level without meaningful differences. We report results for industry clustered SE. t-Statistics in parentheses. \*\*\*, \*\*, and \* indicate significance at the 1%, 5%, and 10% level, respectively.

Panel A			
	Treatment	Control	Difference
Tenure (0 to 5)	1.257	0.904	0.353***
Tenure (6 to 10)	1.146	0.968	0.179***
Tenure (11 to 15)	1.065	0.954	0.111***
Tenure (16 to 20)	0.964	0.883	0.081*
Tenure (21 to 25)	0.818	0.906	-0.089
Tenure (26 to 30)	0.558	0.811	-0.254**
Tenure (31 to 35)	0.387	0.884	-0.497***
Tenure (36 to 40)	0.333	0.471	-0.137
Tenure (41 to 45)	0.308	0.000	0.308
Tenure (46 to 50)	0.000	-	-

Panel B	
Dependent variable	# Outside boards
Tenure	-0.016 (-1.57)
LT 2012	0.283** (1.97)
Tenure x LT_2012	-0.011 (-1.38)
Constant	1.092*** (6.08)
Firm FE?	YES
Year FE?	YES
Firm clustered SE	YES
N	11,548
R <sup>2</sup>	1.09%

Table 15

## Director tenure's impact on other firms' performance

In this table we present results of the effects on performance of directors who serve on multiple boards. We identify a subsample of LT directors that serve in multiple boards and estimate the effects of their tenure in the firm where they are LT on the performance of the second firm in which they also serve as independent directors. CONTROLS is a vector of the following controls: Standard deviation of independent directors tenure, Average tenure of inside directors, CEO age, CEO ownership in excess of 20%, CEO-chairman, CEO tenure on board, Fraction of outside directors, Busy board, Blockholder on board, Board size, Firm age, Total Assets, R&D/Sales ratio, EBITDA/Total assets lagged, Staggered Board, Standard deviation of stock price return in the previous fiscal year. All regressions include firm and year fixed-effects. Standard errors are clustered at the firm level. \*\*\*, \*\*, and \* indicate significance at the 1%, 5%, and 10% level, respectively.

	Tobin's Q
Tenure on other board	0.017* (1.88)
Tenure on other board squared	-0.001** (-2.08)
CONTROLS	YES
Constant	2.910*** (3.95)
FirmFE?	YES
Year FE?	YES
Firm Clustered SE?	YES
N	4,881
$R^2$	37.14%

Table 16

## LT directors and Lead Independent Directors

In this table we present estimates of the likelihood of independent board members of being elected as Lead Independent Directors (LID). From our initial sample we keep firm-year observations for firms that have a LID recorded in BoardEx. We then calculate the likelihood of independent board members of being elected as LID conditional on a number of individual characteristics. The dependent variable LID is a dummy that takes the value of one if the director is nominated as LID. The independent variables are as follows: LT director is a dummy variable equal to 1 if the director is a LT director; tenure is the number of years s/he has been on the board; audit, compensation and nomination committee are dummy variables that indicate whether, at the time of the first election, the elected LID was a member of any of the three committees; multiple boards is a variable that captures the number of concurrent board appointments; age is the directors' age; gender is a dummy variable that takes the value of 1 if the director is a woman. Standard errors are clustered at the firm level. \*\*\*, \*\*, and \* indicate significance at the 1%, 5%, and 10% level, respectively.

	LID
LT director	0.104*** (18.13)
Tenure	0.004*** (14.87)
Audit committee	0.002*** (5.26)
Compensation committee	0.004*** (12.56)
Nomination committee	0.087*** (25.56)
Multiple boards	-0.001** (-2.08)
Age	0.002*** (10.61)
Gender (Female)	-0.061*** (-18.49)
Constant	-0.153*** (3.95)
Firm FE ?	YES
Year FE?	YES
FirmXyear Clustered SE?	YES
N	76,195
$R^2$	9.57%

Figure 1

Directors tenure and outside board membership

In this figure we plot the difference in outside board membership between LT and non-LT directors conditional on directors tenure. We first classify directors as LT or non-LT if in 2012 they were LT directors in a firm. We then backtrack their outside boardmembership to the beginning of their careers and plot the results over the tenure length.

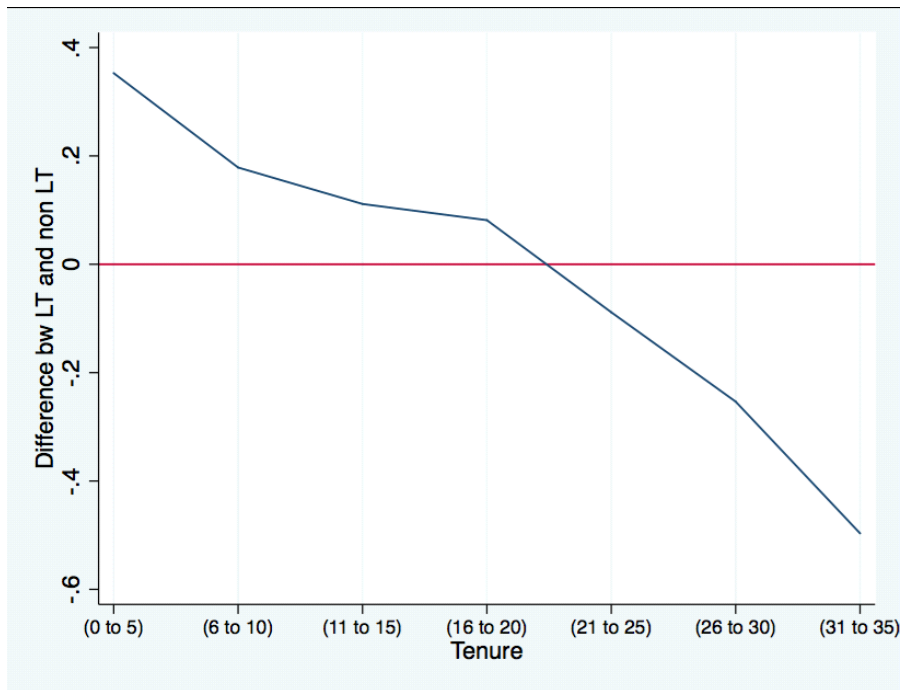




Table A1  
Variable description

Variable	Description
Max Tenure of Independent Directors	Board tenure of the longest-tenured independent director on the board
Avg Tenure of Indep Directors	Average board tenure of all independent directors on the board
Standard Deviation of Independent Directors Tenure	Standard deviation of tenure of the independent directors on board
Avg Tenure of Inside Directors	Average board tenure of inside directors
CEO age	Age of the current CEO
CEO ownership >= 20%	Dummy variable equal to 1 if CEO has greater than or equal to 20% of stock
CEO-chair	Dummy variable equal to 1 if CEO is also chairman of the board
CEO tenure on board	Board tenure of the CEO
Fraction of Independent	Fraction of independent directors on board
Busy Board	Dummy variable equal to 1 if greater than or equal to 50% of the directors on board
Blockholder on Board	Dummy variable equal to 1 if there is a director on board with greater than or equal to 5% of shares
Board Size	Number of all directors on board
log(1+Firm Age)	log of years firm is on compustat plus 1
log(Assets)	log of total assets
R&D/Sales	R&D intensity measured by R&D divided by sales. If R&D is missing, it is assumed to be 0
EBITDA/TA <sub>(t-1)</sub>	Earnings before interest, tax, depreciation, and amortization divided by lagged total assets
Staggered Board	Dummy variable equal to 1 if firm has a staggered board
Standard Deviation of Daily Returns over Past Fiscal Year	Standard deviation of daily returns during the previous fiscal year
Risk Industries	Industries defined as especially risky for litigation in Francis, Philbrick, and Schipper (1994)
Return <sub>(t-1)</sub>	The stock return over the previous year
Return Skewness <sub>(t-1)</sub>	The skewness of daily stock return over the previous year
Return Volatility <sub>(t-1)</sub>	The volatility of daily stock return over the previous year
Duchin Info Score	The information environment score based off Duchin et al (2010).
Tenure <sub>other board</sub>	When directors are on multiple boards. This variable is the director's tenure on those other boards. If the director is on more than 1 other board, the maximum tenure of the other firms is taken.
Has Max Indep Dir <sub>other</sub>	A dummy variable that is equal to 1 if the firm has a director that is the longest-serving director on another firm

Table A2

## Dynamic OLS and GMM (system GMM) test of endogeneity

In this table we present results of a dynamic OLS and system GMM test for endogeneity. Column 1 reports results of a dynamic fixed-effect OLS where we introduce as an explanatory variable the one-year lag of the dependent variable. Columns 1-3 in the System GMM section report results for a set of stepwise regression that control for the required number of lags in the system GMM test. Column 4 report results for the system GMM test. In all tests the dependent variable is firm performance measured as Tobin's Q. Independent variables in OLS regressions are the lags 1 to 3 of Tobin's Q. Control variables in OLS regressions are Total Assets, R&D/Sales ratio, EBITDA/Total assets lagged, Standard deviation of stock price return in the previous fiscal year. The independent variables in system GMM regressions are the tenure of the longest serving independent director and its squared term. Controls in the system GMM model are the average tenure of independent directors without the longest serving director, CEO age, CEO ownership in excess of 20%, CEO-chairman, CEO tenure on board, Fraction of outside directors, Busy board, Blockholder on board, Board size, Firm age, Total Assets, R&D/Sales ratio, EBITDA/Total assets lagged, Staggered Board, Standard deviation of stock price return in the previous fiscal year. AR(1) and AR(2) are tests for first-order and second-order serial correlation in the first differenced residuals with the null hypothesis of no serial correlation. The null hypothesis of the Hansen test of overidentification is that all instruments are valid. The null hypothesis of the difference-in-Hansen test of exogeneity is that the instruments used for the equations in levels are exogenous. All regressions include industry and year fixed-effects. Standard errors are clustered at the firm level. \*\*\*, \*\*, and \* indicate significance at the 1%, 5%, and 10% level, respectively.

Dependent Variable	Dynamic OLS	System GMM			
		(1) Tobin's Q	(2) Tobin's Q	(3) Tobin's Q	(5) Tobin's Q
Max Tenure of Indep Directors	0.012** (2.18)				0.0385** (0.015)
Max Tenure of Indep Directors Squared	-0.001 (-1.98)				-0.001* (0.000)
Tobin's $Q_{(t-1)}$	0.419*** (19.51)	0.433*** (0.024)		0.414*** (0.025)	0.177*** (0.028)
Tobin's $Q_{(t-1)}$		-0.001 (0.020)	0.231*** (0.024)	0.025 (0.023)	
Tobin's $Q_{(t-1)}$			-0.016 (0.016)	-0.007 (0.014)	
CONTROLS	YES	YES	YES	YES	YES
Constant	1.449*** (3.39)	1.911*** (0.341)	2.719*** (0.401)	2.212*** (0.329)	1.779 (1.684)
Firm FE?	YES	YES	YES	YES	YES
Year FE?	YES	YES	YES	YES	YES
Firm Clustered SE?	YES	YES	YES	YES	YES
N	13,777	10,209	8,626	8,361	12,408
$R^2$	57.64%	45.00%	33.10%	47.40%	-
AR(1) (p-value)					0.000
AR(2) (p-value)					0.174
Hansen test of overidentification restrictions (p-value)					0.907
Difference-in-Hansen test of exogeneity (p-value)					0.792