Boards, retained ownership and failure risk of French IPO firms

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Abstract

Purpose – *This paper aims to investigate the relationship between corporate governance structures of French initial public offering (IPO) firms and the likelihood of failure and involuntary delisting from the stock exchange in the long run.*

Design/methodology/approach – *A matched-pairs research design was used and 36 delisted IPO firms were compared to an equal number of control IPO firms matched in terms of time, size and industry. Conditional logistic regression analyses were performed, and it was found that corporate governance structures in delisted IPO firms were relatively weak compared to control IPO firms.*

Findings – *A significant negative association was found between the likelihood of exchange delisting and the proportion of independent directors. A positive and significant relationship was also found between the likelihood of exchange delisting on the one hand and the chief executive officer/Chair role duality and the retained ownership by insiders after the IPO on the other hand. However, no relationship was detected between IPO failure risk and board size at the IPO time.*

Originality/value – *Retained ownership and failure risk of French IPO firms.*

Keywords *Corporate governance, Corporate finances, Initial public offerings, Board of directors, Retained ownership, IPO failure risk*

Paper type *Research paper*

1. Introduction

While a large body of research examines different aspects of the post-initial public offering (IPO) stock return performance (Ritter, 1991; Sahoo and Rajib, 2010; Ahmad-Zaluki *et al.*, 2011) and failure of new listings (Demers and Joos, 2007), little has been documented regarding the impact of corporate governance mechanisms of IPO firms on their likelihood of involuntary delisting from the stock exchange. If we are interested in the IPO cases, it is because IPO firms are characteristically different from firms that have a public trading history; there is a paucity of information concerning IPO firms, and therefore, a high level of information asymmetry allowing the use of opportunistic behavior like aggressive earnings management that induce investors in error and have bad effect on post-IPO performance (Chen *et al.*, 2005a, 2005b; DuCharme *et al.*, 2001, 2004; Roosenboom *et al.*, 2003; Teoh *et al.*, 1998) and post-IPO delisting risk (Li *et al.*, 2006). Understanding the factors associated with post-IPO failure becomes an important issue, especially with the high cost associated with delisting from the stock exchange (Shumway, 1997; Shumway and Warther, 1999; Macey *et al.*, 2004). Corporate governance mechanisms seem to have a powerful link with the probability of corporate failure (Charitou *et al.*, 2007 and Mangena and Chamisa, 2008) through their impact on firm decisions (Weisbach, 1988; Borokhovich *et al.*, 1996 and Dahya and McConnell, 2005), risk-taking (Adams *et al.*, 2005; Cheng, 2008; Nakano and Nguyen, 2012 and Lewellyn and Muller-Kahle, 2012) and through limitation of opportunistic behavior like the manipulations of results (Chtourou *et al.*, 2001; Klein, 2002; Xie *et al.*, 2003; Jaggi *et al.*, 2009 and Ghosh *et al.*, 2010). This study contributes to the literature by providing insights on the factors that are associated with IPO failure from a

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corporate governance and ownership structure perspective. Indeed, examination of IPO firms offers potential for more insightful analysis of corporate governance effects, as corporate governance of the firm at listing is likely clearer than at any point in the firm's history (Filatotchev and Wright, 2005). In our analysis, we use a matched-pairs research design of 36 firms, making an IPO between 1999 and 2007 and delisted subsequently from the French market, and 36 control firms, and we perform conditional logistic-regression analyses. Our results show that corporate governance structures in delisted IPO firms were relatively weak compared to control IPO firms. We find a significant negative association between the likelihood of exchange delisting and the proportion of independent directors. We also find that the chief executive officer (CEO)/Chair role duality and the retained ownership by insiders are positively and significantly associated to the likelihood of exchange delisting. However, we detect no relationship between IPO failure risk and board size at the IPO time.

The remainder of this paper is organized as follows. Section 2 reviews previous literature and develops the hypotheses. Section 3 describes the methodology used. Section 4 evaluates the empirical results and, finally, Section 5 concludes.

2. Literature review and hypotheses development

2.1 Board characteristics

The empirical literature generally supports that independent directors are more likely to protect shareholder interests from managerial opportunism (Fama and Jensen, 1983; Mangena and Pike, 2005) and to improve the quality of firm decisions and corporate performance (Beasley, 1996; Dehaene *et al.*, 2001; Klein, 2002 and Raheja, 2005). Weisbach (1988) finds a strong association between prior performance and the probability of CEO resignation for companies with outsider-dominated boards than for companies with insider-dominated boards. More precisely, he shows that independent boards are quicker to replace underperforming managers. Borokhovich *et al.* (1996) and Dahya and McConnell (2005) find that the increase in outside directors leads to an increase in the likelihood of an outside CEO appointment. Additionally, they find that stock returns around succession announcements indicate that shareholders benefit from outside appointments. Apparently, boards with more outside directors will lead to different and better decisions. And this obviously has implications for the firm's survival. Some studies show that firms with more independent boards will be less likely:

- to become involuntarily delisted from the stock exchange (Charitou *et al.*, 2007);
- to increase incidences of listing suspension (Mangena and Chamisa, 2008); and
- to rise the likelihood of financial fraud (Beasley, 1996; Dechow *et al.*, 1996 and Peasnell *et al.*, 2001) or earnings management (Klein, 2002; Chtourou *et al.*, 2001 and Jaggi *et al.*, 2009).

Concerning the IPO context, Balatbat *et al.* (2004) find that board composition of Australian IPO firms (i.e. outsider versus insider control) is not associated with operating performance, although there is some evidence that independent board leadership is associated with better operating performance. Additionally, outside directors are keen to promote their reputation and the value of their human capital by making effective control of any opportunistic management, as the market for directorships prices them according to their performance (Shivdasani, 1993; Mangena and Chamisa, 2008). All these arguments lead us to the following hypothesis:

H1. There is a significant negative association between the proportion of independent directors in the boards of French IPO firms and the probability of failure and involuntary delisting from the stock exchange in the long run.

Yermack (1996) and Eisenberg *et al.* (1998) find an inverse relation between board size and firm performance; they argue that large boards may be less cohesive, less effective in

carrying out their duties and more difficult to coordinate. Thus, there will be less control and supervision of managers who will have more latitude to take opportunistic decisions. Regarding IPO firms, Chang *et al.* (2010) find that board size has a negative impact on post-IPO stock returns in China. Ching *et al.* (2006) find that among companies making seasoned equity offering in Hong Kong, only those with a large board manage their earnings aggressively. That is why we expect a significant positive relation between board size of French IPO firms and involuntary delisting in the long run.

However, Charitou *et al.* (2007) find that board size has a negative impact on involuntary delisting. This confirms the results of previous studies which suggest that larger boards are associated with lower corporate risk-taking. Cheng (2008) provides empirical evidence that firms with larger boards have lower variability of corporate performance. Its results are consistent with the view that it takes more compromises for a larger board to reach consensus, and, consequently, decisions of larger boards are less extreme and less risky. Likewise, Adams and Ferreira (2010) reveal that larger groups are less extreme in their betting decisions, and Nakano and Nguyen (2012) indicate that firms with larger boards exhibit lower performance volatility, as well as lower bankruptcy risk. Coles *et al.* (2008) find that larger firms, diversified firms and firms that rely more on debt financing, will derive greater firm value from having larger boards. In addition, larger boards with greater breadth of knowledge and expertise are more effective in monitoring the actions of management (Beasley, 1996; Karamanou and Vafeas, 2005; Haniffa and Hudaib, 2006). Moreover, some studies find a negative relationship between board size and the level of earnings management (Xie *et al.*, 2003; Ghosh *et al.*, 2010). Some empirical studies fail to detect a significant relationship between board size and performance (Dehaene *et al.*, 2001, in Belgium; Ho and Williams, 2003, in South Africa; Chin *et al.*, 2004, in New Zealand; Ghazali, 2010, in Malaysia). We hypothesize the following:

H2. There is a significant negative relationship between board size of French IPO firms and the probability of failure and involuntary delisting from the stock exchange in the long run.

Fama and Jensen (1983) argue that a CEO who also holds the position of Chairman of the board has strong individual power and, therefore, more latitude in taking decisions, which could limit the board's oversight and governance role. In addition, the absence of duality functions ensures that the decisions taken by the board reflect the opinion of the majority and not the dominant personality (Ghazali, 2010). Thus, duality is associated with greater CEO power, and the final decision will reflect the CEO's opinion more directly and will be more variable and risky than decisions made by a group of top managers (Adams *et al.*, 2005). Lewellyn and Muller-Kahle (2012) show that a CEO's power is positively related to excessive risk-taking. They find general support for these hypotheses in a matched-pair sample of 74 firms and 344 firm years, where half the firms specialized in subprime lending and the other did not from 1997 to 2005. Hence, the risk of corporate failure will be higher when the CEO has more power through duality.

The empirical results are mixed. Mangena and Chamisa (2008) report no significant relationship between role duality and incidences of listing suspension from the JSE Johannesburg Securities Exchange of South Africa. Likewise, other studies report no significant association with performance (Vafeas and Theodorou, 1998; Weir *et al.*, 2002; Mashayekhi and Bazaz, 2008 and Ghazali, 2010), financial fraud (Beasley, 1996) and earnings management (Xie *et al.*, 2003; Ghosh *et al.*, 2010 and Marra *et al.*, 2011). In contrast, Chen *et al.* (2005a, 2005b) and Rahman and Haniffa (2005) find a significant negative relationship between role duality and firm performance, and Sarkar *et al.* (2008) find a positive and significant relationship between CEO duality and earnings management by listed companies in India. We therefore hypothesize the following:

H3. There is significant positive relationship between role duality of French IPO firms and the probability of failure and involuntary delisting from the stock exchange in the long run.

2.2 Retained ownership

Leland and Pyle (1977) show that retained ownership can signal issue quality. IPO firms in which insiders retain a large proportion of their ownership are more likely confident about the future prospects of the firm, given that they have more information about the firm than that which is publicly conveyed in the offering prospectus and in the IPO road show (Demers and Joos, 2007). Thus, we expect that IPO firms with a higher level of post-IPO insider (i.e. officer and director) ownership may have lower failure risk than other IPO firms. In addition, Jain and Kini (1995) found a positive and significant relationship between the percentage of capital retained by the original entrepreneurs and post-IPO operating performance. More retained ownership by insiders may reduce managerial incentives to expropriate shareholders' wealth and thus helps in aligning the interests of managers and shareholders and decreasing agency costs (Jensen and Meckling, 1976) in the post-IPO phase. According to Dharwadkar *et al.* (2000), a high ownership concentration and few owners let to lower coordination costs. Bruton *et al.* (2010) find a positive association between concentration of retained ownership and IPO firm performance. They argue that ownership concentration is a particularly important corporate governance mechanism that reduces the negative effects of the IPO discount arising from agency conflicts. However, Balatbat *et al.* (2004) do not find any evidence of a positive association between retained ownership by insiders and performance in the long run of Australian IPO firms. Based on alignment-of-interest hypothesis, we expect a negative relationship between the share of capital retained by insiders and IPO failure risk in the long term. We therefore hypothesize the following:

H4a. There is significant negative relationship between the share of capital retained by insiders after the IPO and the probability of failure and involuntary delisting from the stock exchange in the long run.

However, Demsetz (1983) and Fama and Jensen (1983) found that an increase in ownership control may also be associated with adverse entrenchment effects that can lead to an increase in managerial opportunism and expropriation of outside investors. Morck *et al.* (1988) argued that the negative effect of entrenchment is reflected more while valuing securities. According to Jensen (1986), the divergence of interest between managers and shareholders leads entrenched managers, who prefer to divert excess cash flow or proceeds from IPO, to invest in projects with negative net present value at the expense of shareholders' wealth and the performance of the firm in the future (Yong, 2007). Mazzola and Marchisio (2003) report a significantly subsequent underperformance of family business IPO firms, where entrenchment effect is likely to be more. Similarly, the main findings of Chahine (2007) support the entrenchment hypothesis, and his study demonstrates a negative relationship between family control and performance of French IPO firms in the long run. Additionally, Chen *et al.* (2001), Cormier and Martinez (2006) and Ahmad-Zaluki *et al.* (2011) find a positive relationship in their empirical investigations between earnings management in the IPO year and retained ownership. In other words, insiders who retain a larger proportion of their company post-IPO engage more in aggressive earnings management. This leads to a higher risk of subsequent IPO failure and involuntary delisting from the stock exchange (Li *et al.*, 2006). Hence, the following hypothesis:

H4b. There is a significant positive relationship between the share of capital retained by insiders after the IPO and the probability of failure and involuntary delisting from the stock exchange in the long run.

2.3 Control variables: other factors influencing IPO failure risk

We control for the IPO's age, measured by the natural log of 1 + the number of years between the firm's founding date and its IPO date. According to previous studies, we expect that worst performing and failed IPOs in the long term are those who are young (Ritter, 1991; Demers and Joos, 2007; Li *et al.*, 2006) because there is greater uncertainty

associated with newer and less established firms. We also control for the IPO leverage measured by total borrowings over total assets in the IPO year. Consistent with the results of prior studies, we anticipate the probability of bankruptcy and failure to be important in leverage for IPO firms (Demers and Joos, 2007; Li *et al.*, 2006). Finally, we include profitability, defined as net income divided by total assets in the IPO year, to control for differences in operating performance. We expect that more profitable IPO firms have fewer risk to fail and to delist from the market subsequently (Fama and French, 2004; Li *et al.*, 2006).

3. Data and methodology

3.1 Dataset

The dataset comprises firms making an IPO between 1999 and 2007 that are identified in either the *Orbis compiled by the Bureau Van Dijk* database or the *Corporatefocus Premium by infinancial* database as delisted firms following bankruptcy and liquidation. The initial sample comprises 78 delisted firms. From this sample, we exclude firms with missing data and that did not fail during or before their fifth year subsequent to IPO, and firms with no suitable matching firms. In accordance with previous studies we use a matched-pairs research design (Hosmer and Lemeshow, 2000; Peasnell *et al.*, 2001; Charitou *et al.*, 2007 and Mangena and Chamisa, 2008). More precisely, as a benchmark against which to compare the corporate governance of failed IPO firms, we construct a matched sample of control firms as follows: each delisted IPO firm was matched with a similar no-failed IPO firm in terms of industry (the same two-digit SIC), size (total assets)[1] and time period (IPO year or around two years)[2]. The matching procedure leads to 36 delisted and 36 industry and size-matched control IPO firms. Accounting data were collected from *Orbis compiled by the Bureau Van Dijk* and *Thomson one Banker* databases. Corporate governance data at the IPO time and shares retained by insiders after the IPO are obtained from prospectus and post-IPO published annual reports collected from *Corporatefocus Premium* and *Thomson one Banker* databases. Table I presents the distribution of the delisted IPO firms of our sample.

3.2 Methodology

To preserve the matched character of the sample, we use a conditional logistic regression (Hosmer and Lemeshow, 2000), given that our dependent variable (*Delist*) is dichotomous

Table I Analysis of sample of delisted IPO firms from the French market

Type of analysis	*No.*	*%*
Panel A: analysis by year of delisting		
2010	1	2.78
2009	6	16.67
2008	2	5.55
2007	2	5.55
2006	3	8.34
2005	2	5.55
2004	9	25
2003	7	19.45
2002	4	11.11
Total	36	100
Panel B: analysis by industrial sector		
Computer Hardware and Software	21	58.33
Industrials	4	11.11
Electronic equipment	4	11.11
Durable goods	3	8.34
Real estate	1	2.77
Others	3	8.34
Total	36	100

and takes the value 1 if a firm involuntary delist from the stock exchange during or before their fifth year subsequent to IPO and 0 otherwise[3]. Thus, we estimate the following logistic regression model:

$$Delist = \beta_1 Indep + \beta_2 Size + \beta_3 Dual + \beta_4 Retown + \beta_5 Ln(1 + Age) + \beta_6 Prof + \beta_7 Lev + e_j \quad (1)$$

where:

- *Indep* = the proportion of independent external directors serving on the board at the time of the IPO.
- *Size* = the size of the Board of Directors at the time of the IPO.
- *Dual* = dummy variable equal to 1 when the board chairman and CEO positions are held by one individual at the time of the IPO, and 0 otherwise.
- *Retown* = the proportion of shares retained by insiders (i.e. officer and director) after the IPO.
- *Ln (1 + Age)* = the natural logarithm of one plus company age in years.
- *Prof* = net income divided by total assets in the IPO year.
- *Lev* = total borrowings over total assets in the IPO year.
- e_j = error term.

4. Empirical results

4.1 Descriptive statistics and univariate analysis

Table II presents the summary descriptive statistics for both delisted and control IPO firms and the related univariate tests. For each variable, we present the difference between the delisted and control firms using the Mann–Whitney *U* test for the continuous variables and the chi-square test for categorical variables.

The table reveals that delisted IPO firms have a significantly lower proportion of independent directors, with a median (mean) of 0.00 per cent (2.34 per cent) compared to

Table II Descriptive statistics and results of univariate analysis of the two groups (groups of delisted IPO firms and group of matched control IPO firms)

Variables	*Groups*	*Mean/prop*	*Median*	*SD*	*z-statistics*	χ^2 *test*
Indep	Control firms	Mean = 0.2091	0.200	0.2237	$z = -4.451$***	n/a
	Delisted firms	Mean = 0.0234	0.000	0.0852	$p = (0.000)$	n/a
Size	Control firms	Mean = 4.92	5.00	1.842	$z = -1.421$	n/a
	Delisted firms	Mean = 4.28	4.00	1.406	$p = (0.155)$	n/a
Dual	Control firms	Prop = 0.5555	n/a	n/a	n/a	$\chi^2 = 6.545$**
	Delisted firms	Prop = 0.8333	n/a	n/a	n/a	$p = (0.011)$
Retown	Control firms	Mean = 0.5110	0.5174	0.1693	$z = -3.311$***	n/a
	Delisted firms	Mean = 0.6562	0.6359	0.1698	$p = (0.001)$	n/a
Age	Control firms	Mean = 9.56	8.00	6.938	$z = -1.538$	n/a
	Delisted firms	Mean = 8.81	6.00	11.143	$p = (0.124)$	n/a
Prof	Control firms	Mean = 0.0673	0.0882	0.1714	$z = -3.807$***	n/a
	Delisted firms	Mean = −0.0777	0.0115	0.2106	$p = (0.000)$	n/a
Lev	Control firms	Mean = 0.4561	0.3989	0.2268	$z = -2.331$**	n/a
	Delisted firms	Mean = 0.5927	0.5979	0.2389	$p = (0.020)$	n/a

Notes: The delisted group consists of 36 firms involuntary delisted from the French Stock Exchange during or before their fifth year subsequent to IPO. Each delisted IPO firm was matched with a similar no-failed IPO firm in terms of industry (the same two-digit SIC), size (total assets) and time period (IPO year or around two years). *Indep* = the proportion of independent external directors serving on the board at the time of the IPO; *Size* = the size of the Board of Directors at the time of the IPO; *Dual* = dummy variable equal to 1 when the board chairman and CEO positions are held by one individual at the time of the IPO, and 0 otherwise; *Retown* = the proportion of shares retained by insiders after the IPO; *Age* (in years) = the number of years between incorporation and the IPO date; *Prof* = net income divided by total assets in the IPO year; *Lev* = total borrowings over total assets in the IPO year. For continuous variables, the differences between medians of delisted firms and control firms are based on the Mann–Whitney *U* test. For discrete variables, the differences between proportions are based on the independent test of χ^2; **and; ***denote significantly different from zero at the 0.10, 0.05 and 0.01 levels, respectively

20 per cent (20.91 per cent) for the control IPO firms. For board size, we notice that delisted IPO firms tend to have a smaller board of directors than control IPO firms. The median (mean) number of directors is 4.00 (4.28) compared with 5.00 (4.92) for control IPO firms. The median (mean) of retained ownership by insiders after the IPO is about 63.59 per cent (65.62 per cent) for the delisted firms and about 51.74 per cent (51.10 per cent) for the control firms. The Mann–Whitney *U* tests in Table II indicate that there are significant differences between the delisted and control firms only with respect to the proportion of independent directors serving on the board at the time of the IPO (*Indep*) and the proportion of shares retained by insiders after the IPO (*Retown*). Regarding categorical variables, delisted firms are more likely than control firms to have a combined role of CEO and chairman at the IPO time (chi-square test, *p*-value = 0.011). Focusing next on the control variables, delisted IPO firms are younger than control IPO firms, but not significantly (Mann–Whitney *U* test, *p*-value = 0.124), with a significantly lower profitability (Mann–Whitney *U* test, *p*-value = 0.000) and higher leverage (Mann–Whitney *U* test, *p*-value = 0.020).

4.2 Results of logistic-regression analysis

4.2.1 Correlation matrix and multicollinearity. In Table III, we provide the Pearson's rho correlations between the variables used in the logistic regression. Delisting is negatively and significantly correlated with the independence of the board and profitability in the IPO year, and positively and significantly correlated with the proportion of shares retained by insiders after the IPO and leverage. However, no significant correlation was revealed between the delisting risk on the one hand and the size of the board, the duality and the age of IPO on the other hand. Remarkably, retained ownership by insiders after the IPO is negatively and significantly correlated with board independence, suggesting boards and ownership incentives are complements in monitoring management (Charitou *et al.*, 2007).

The most important in regression analysis is the problem of multicollinearity among the independent variables. According to Table III, all the correlation coefficients are below 0.8 which is the limit at which we begin to have a serious problem of multicollinearity. In addition, we calculated the variance inflation factors (VIFs), which also tests for the presence of collinearity between the explanatory variables. In all cases, the VIFs are below 2, knowing that the critical value is 10 (Tabachnick and Fidell, 1996). Therefore, we can deduce the absence of any multicollinearity problems.

Table III Pearson correlations among governance variables, retained ownership variable, control variables and the likelihood of involuntary delisting of IPO firms in the long run

Variables	*Delist*	*Indep*	*Size*	*Dual*	*Retown*	*Ln (1 + Age)*	*Prof*	*Lev*
Delist	1							
Indep	−0.486**	1						
Size	−0.194	0.464**	1					
Dual	0.302*	−0.270*	−0.144	1				
Retown	0.398**	−0.476**	−0.420**	0.084	1			
Ln (1 + Age)	−0.172	0.083	−0.005	−0.179	−0.023	1		
Prof	−0.358**	0.018	−0.139	0.007	0.046	0.135	1	
Lev	0.285*	−0.269*	−0.341**	0.022	0.301*	0.073	−0.428**	1

Notes: This table shows Pearson correlations among corporate governance variables, retained ownership variable, control variables and the likelihood of involuntary delisting of IPO firms in the long run. The delisted sample consists of 36 firms involuntary delisted from the French Stock Exchange during or before their fifth year subsequent to IPO. Each delisted IPO firm was matched with a similar no-failed IPO firm in terms of industry (the same two-digit SIC), size (total assets) and time period (IPO year or around two years). *Indep* = the proportion of independent external directors serving on the board at the time of the IPO; *Size* = the size of the Board of Directors at the time of the IPO; *Dual* = dummy variable equal to 1 when the board chairman and CEO positions are held by one individual at the time of the IPO, and 0 otherwise; *Retown* = the proportion of shares retained by insiders after the IPO; *Age* (in years) = the number of years between incorporation and the IPO date; *Prof* = net income divided by total assets in the IPO year. *Lev* = total borrowings over total assets in the IPO year; **the correlation is significant at the 1% level (bilateral); *the correlation is significant at the 5% level (bilateral)

4.2.2 Regression-analyses results. Table IV presents the results of the conditional logistic regression analyses of the relationship between the delisting risk and the corporate governance and retained ownership of French IPO firms. In Model 1, the proportion of independent outside directors (*Indep*), the board size (*Size*), the duality of CEO and Chairman (*Dual*) and retained ownership by insiders (*Retown*) are variables that do not appear to have any significant effect on the IPO failure risk, contrary to the results of univariate analysis (except for board size). Although the analyses in the previous section (Section 4.2.1) suggest that the correlations among the independent variables are within suggested limits, we feel significant relationships (p < 0.05) among the independent variables (Table III). In addition, our sample size is too small (36 pairs only). Consequently, we re-estimate our regressions by including these variables in separate models (see regression 2, 3, 4 and 5). The results of this analysis indicate that the conditional logistic regression models are significant in explaining French IPO failure risk at the 0.05 level (Model 3) or better (Models 2, 4 and 5) as signified by the Model $\div^2$ statistic. The Pseudo R^2 indicates that 56.30, 32.85, 39.63 and 54.56 per cent of the probability of failure and involuntary delisting from the French Market is explained by the four variables in the models 2, 3, 4 and 5, respectively.

In Model 2, the results show that *indep* is significantly (at the 0.05 level) and negatively associated with the failure risk, thus, accepting *H1*. This is consistent with Charitou *et al.* (2007), who report a negative relationship between the fraction of independent directors serving on the board and the likelihood of delisting from New York Stock Exchange, and Mangena and Chamisa (2008) also find that firms with a higher percentage of non-executive directors are less likely to be suspended from the JSE Johannesburg Securities Exchange of South Africa. The negative coefficient demonstrates that IPO firms with a higher proportion of independent directors in the board are less likely to fail and to delist from the stock exchange in the long run, which is consistent with Balatbat *et al.* (2004) who find that independent board leadership is associated with better operating performance of Australian IPO firms. This suggests that independent directors are more likely to protect shareholder interests from managerial opportunism (Fama and Jensen, 1983; Mangena and Pike, 2005) and to improve the quality of managerial decisions and corporate performance (Beasley, 1996; Dehaene *et al.*, 2001; Klein, 2002 and Raheja, 2005). Independent boards are quicker to replace underperforming managers (Weisbach, 1988) and to appoint performing managers (Borokhovich *et al.*, 1996 and Dahya *et al.*, 2005). Thus, boards with more outside directors will lead to different and better decisions. This, obviously, has implications for the firm's survival.

In Model 3, the coefficient of *Size* is not significant, and thus, inconsistent with our anticipation in *H2* and the result of Chang *et al.* (2010) concerning the relationship between board size of IPO firms in China and post-IPO stock returns. However, this result is consistent with the finding of Mangena and Chamisa (2008) who also report no significant relationship between board size and incidences of listing suspension from the JSE Securities Exchange. This result is also compatible with the finding of Dehaene *et al.* (2001), Ho and Williams (2003), Chin *et al.* (2004) and Ghazali (2010) who fail to detect a significant relationship between board size and firm performance in Belgium, South Africa, New Zealand and Malaysia, respectively. Thus, the board size of French IPO firms does not affect the probability of failure and involuntary delisting from the stock exchange in the long run.

The hypothesis of the relationship between IPO failure risk and duality, *H3*, was supported. The coefficient of *Dual*, in Model 4, is positive (1.547) and significant (at the 0.05 level), suggesting that the likelihood of IPO failure increases with the fact that the board chairman and CEO positions are held by one individual at the time of the IPO. This result is consistent with the findings of Chen *et al.* (2005a, 2005b) and Rahman and Haniffa (2005) who report a significant negative relationship between role duality and firm performance. Combining these two important roles creates a strong individual power base which encourages greater

Table IV Conditional logistic regression on the relation between board and ownership characteristics of French IPO firms with the likelihood of failure and involuntary delisting from the stock exchange in the long run

Variables	*Predicted sign*	*Model 1*		*Model 2*		*Model 3*		*Model 4*		*Model 5*	
		Coefficient	*Wald χ^2*	*Coefficient*	*Wald χ^2*	*Coefficient*	*Wald χ^2*	*Coefficient*	*Wald χ^2*	*Coefficient*	*Wald χ^2*
Corporate-governance variables											
Indep	−	−46.770	2.029	−10.874	5.126**	–	–	–	–	–	–
Size	±	−0.530	0.312	–	–	−0.334	1.862	–	–	–	–
Dual	+	−5.604	1.815	–	–	–	–	1.547	4.721**	–	–
Retown	±	82.921	1.304	–	–	–	–	–	–	12.528	6.829***
Control variables											
Ln (1 + Age)	−	6.056	0.893	−0.491	0.626	−0.336	0.491	−0.430	0.843	−0.486	0.591
Prof	−	−48.667	1.380	−4.951	2.852*	−4.177	3.093*	−4.059	2.786*	−6.064	4.080**
Lev	+	−14.535	0.958	1.244	0.318	0.782	0.211	1.809	1.110	−0.131	0.003
Number of pairs			36		36		36		36		36
Constant (−2LL)			8.127		20.098		35.568		31.734		21.504
Model χ^2			23.442***		21.110***		11.946**		14.179***		19.546***
Pseudo R^2			0.6866		0.5630		0.3285		0.3963		0.5456

Notes: This table reports the results from a conditional logistic regression linking board and ownership characteristics of French IPO firms with the likelihood of failure and involuntary delisting from the stock exchange in the long run. The delisted sample consists of 36 firms involuntary delisted from the French Stock Exchange during or before their fifth year subsequent to IPO. Each delisted IPO firm was matched with a similar no-failed IPO firm in terms of industry (the same two-digit SIC), size (total assets) and time period (IPO year or around two years). The dependent variable equals one for delisted IPO firms and zero for control firms. Indep = the proportion of independent external directors serving on the board at the time of the IPO; Size = the size of the Board of Directors at the time of the IPO; Dual = dummy variable equal to 1 when the board chairman and CEO positions are held by one individual at the time of the IPO, and 0 otherwise; Retown = the proportion of shares retained by insiders after the IPO; Age (in years) = the number of years between incorporation and the IPO date; Prof = net income divided by total assets in the IPO year; Lev = total borrowings over total assets in the IPO year; *; **and; ***denote significantly different from zero at the 0.10, 0.05 and 0.01 levels, respectively

risk-taking (Adams *et al.*, 2005 and Lewellyn and Muller-Kahle, 2012) and, consequently, a higher risk of failure. In addition, duality could limit the board's oversight and governance role (Fama and Jensen, 1983). In this case, the dominant personality can have more latitude to take opportunistic decisions (Sarkar *et al.*, 2008), especially in the IPO context which is characterized by a high level of information asymmetry.

As shown in Model 5, the coefficient of *Retown* is significantly (at the 0.01 level) and positively associated with the failure risk, thus supporting *H4b*. It turns out that the probability of failure and involuntary delisting of French IPO firms from the stock exchange increases with the proportion of the shares retained by insiders after the IPO. This result reinforces prior research in the context of delisting, suggesting that an increase in ownership control or retained ownership by insiders after an IPO is associated with adverse entrenchment effects that can lead to an increase in managerial opportunism and expropriation of outside investors by aggressive earnings management (Chen *et al.*, 2001; Cormier and Martinez, 2006 and Ahmad-Zaluki *et al.*, 2011) or diversion of IPO proceeds to invest in projects with negative net present value at the expense of shareholders' wealth and the performance of the firm in the future (Yong, 2007). This result is also consistent with the findings of the studies by Mazzola and Marchisio (2003) and Chahine (2007), who find that family IPO firms, where entrenchment effect is likely to be more, significantly underperform in the long run. Additionally, the result contradicts Jain and Kini (1995), who report a positive and significant relationship between the percentage of capital retained by the original entrepreneurs and long-run operating performance of US IPO. This result is important, particularly in the French context, where most listed companies are family-controlled firms (Faccio and Lang, 2002)[4] and outside investor are less protected. Indeed, France is a civil law country, characterized by a low index of investor protection (La Porta *et al.*, 2000), while common law countries have the strongest legal protection of minority shareholders (Hoskisson *et al.*, 2004 and Lerner and Schoar, 2005).

For the control variables, the coefficients of *Prof* are negative and significant in all the models (except Model 1), suggesting that highly profitable firms in the IPO year are less likely to fail from the French market in the long run. These results support the findings of Fama and French (2004) and Li *et al.* (2006). With regard to *Lev*, the coefficients are not significant, thus contradicting Demers and Joos (2007) and Li *et al.* (2006). However, it is important to note that leverage is affected by the IPO issue itself through the issuance of new equity and is likely to be adjusted subsequently (Sahoo and Rajib, 2010). Finally, *Ln (1 + Age*) is not significant unlike the results of Demers and Joos (2007) and Li *et al.* (2006) concerning US IPO firms. As can be seen, results on the control variables are weakly consistent with univariate results, suggesting the importance of governance-independent variables that dominate the control variables.

5. Conclusion

In this study, we contribute to each of the IPO, corporate governance and failure prediction literature by developing an IPO failure prediction model that includes corporate governance mechanisms and other IPO characteristics. We find a negative relationship between proportion of independent directors and post-IPO failure risk. This is consistent with the notion that outside directors are better monitors of management. We also find that the CEO/Chair role duality increases the likelihood of exchange delisting. Another important finding of our study relates to ownership structure. We find a positive relationship between proportion of retained ownership by insiders after the IPO and the delisting risk in the long run. This is consistent with adverse entrenchment effects that can lead to an increase in managerial opportunism, expropriation of outside investors and IPO failure risk. Finally, we find no relationship between failure and board size at the IPO time. While our results are important, we admit that our study has some limitations. First, our sample of 36 delisted IPO firms could be considered too small. Second, we only examine a small set of corporate governance variables constrained by the sample size. Third, bankruptcy and liquidation

are not the only causes of delisting from the stock exchange. Indeed, to remain listed in Euronext Paris, a firm must maintain certain limits and conditions (exp; a minimum number of shareholders, a minimum monthly trading volume and a minimum number of publicly held shares). Despite these limits, the results of this study are potentially useful to shareholders, outside investors, managers and policymakers to improve corporate governance in IPO firms.

Notes

1. We tolerated that there is a slight difference between the size of each delisted IPO firm and the size of matched IPO firm; however, this difference should not exceed 10 per cent of total assets.
2. We found some difficulties to find a similar no-failed IPO firm, especially in terms of time period (IPO year), that is why we tolerated that the matching firm become listed around two years of the IPO of delisted firm.
3. Delisting due to merger/acquisition during or before their fifth year subsequent to IPO, is not considered as involuntary delisting in our study.
4. A study by Faccio and Lang (2002) showed that 86 per cent of French companies have a shareholder holding at least 20 per cent of capital, knowing that block holders are either founders and members of their immediate family or societies (usually holdings) controlling the company. Faccio and Lang (2002) added that in 60 per cent of cases of block holding, the controlling shareholder is a family.

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