

# **Influential Article Review - Can Employee Stocks Cause Stock Price Crash Risk?**

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*This paper examines investments, We present insights from a highly influential paper. Here are the highlights from this paper: This paper examines whether the announcement of an employee stock ownership plan (ESOP) affects stock price crash risk and the mechanism by which the ESOP may influence crash risk, using a sample of Chinese A-share firms from the period 2014 to 2017. We provide evidence that an ESOP announcement is significantly and negatively related to a firm's stock price crash risk. An ESOP announcement sends positive signals to the market that insiders are optimistic about a firm's future value, which helps enhance investor confidence, resist the pressure for a fire sale caused by negative information disclosure, and reduce stock price crash risk. Further research shows that larger-scale, lower-priced and non-leveraged ESOPs are more helpful in reducing crash risk. This paper sheds lights on the impact of ESOPs in a volatile market environment. It also contributes to firms' implementation of ESOPs and the development of the legal system in capital markets. For our overseas readers, we then present the insights from this paper in Spanish, French, Portuguese, and German.*

*Keywords: Employee stock ownership plan (ESOP), Crash risk, Market situation, Signaling effect, Leveraged ESOP, China*

## **SUMMARY**

- Impact of esops on stock price crash risk. Table 3 presents the regression results. Columns and report the results of regressions using matched samples, where crash risk is measured by the negative conditional skewness of firm-specific weekly returns over the past 6 months and the down-to-up volatility respectively. Results show that ESOP announcements are negatively related to future crash risk at the 5% level, indicating that esops can significantly decrease firms' future stock price crash risk.
- Signaling effect of esops on crash risk. To examine the signaling effect of esops on crash risk, we run Eq. And estimate the interaction between esops and firms' negative news in crash risk. We employ three proxies for firms' negative information: Whether the firm's EPS is lower than analysts' consensus expectations ; whether the firm or its executive being penalized by the CSRC ; and whether the firm was involved in lawsuits as a defendant during the past 6 months.

- Signaling effect of esops on crash risk. It is worth noting that the signaling effect in this paper is not entirely consistent with previous mainstream research on stock price crash risk which focuses on the concealment and subsequent concentrated outbreak of bad news . However, as found by Goldstein and Guembel and Chu and Fang , crash risk describes the imbalance of stock price volatility between ascending and descending stages, and is manifested through investors' trading behaviors. Following this research, we compare the differences between ESOP firms and their matched ones on stock price performance and investors' trading behavior after the release of bad news and test the influence of these differences on the relationship of esops and crash risk.
- Stock price performance and investor trading behavior after negative information disclosure. Results in Table 5 show that there are significant differences between ESOP firms and matched ones in stock price performance and investors' trading behavior. Concretely, firms suffer a negative cumulative abnormal return of 15.3% in the 5 days after the release of bad news, while the negative cumulative abnormal return decreases to 12.6% if the firm had announced the adoption of an ESOP beforehand. The 2.7% difference in cumulative abnormal returns may change the distribution of stock returns and affect stock price crash risk.
- Mediation effect of CAR and Stto on the relationship between esops and crash risk. Regression results in Table 6 show that the negative relationship between esops and crash risk still exists when we reduce our research sample to firms experiencing bad news, in columns and , which is the baseline fortesting the mediation effect. Regression results in columns and show that CAR is negatively related to crash risk, which indicates that ESOP adoption may reduce crash risk through changing stock price performance, as ESOP adoption can decrease the negative cumulative abnormal returns caused by bad news . Regression results in columns and show that the negative relationship between esops and crash risk disappears when we add the variable CAR into the regression of ESOP and crash, which further improves the mediation effective of CAR on the relationship between ESOP and crash risk.
- Lock-in period, ESOP and crash risk. Regression results in columns and show that an ESOP is negatively related to crash risk, which indicates that employees are more likely to disclose bad news to avoid the risk of stock price decline within a lock-in period. The significance of the negative relationship between ESOP and crash risk is reduced , and even disappears after the lock-in period when employees no longer have strong motivations to disclose a firm's bad news if they are planning to or already have sold their shares.
- Additional analysis of the signaling effect. Previous research has found that firms adopting esops generally are quite different, and that the details of esops are also varied, that is, esops are heterogeneous.
- ESOP leverage and crash risk. One of the important characteristics of esops is whether or not the funds used in the ESOP come from leveraged financing and the proportion of leverage. Leverage in an ESOP is related to tax avoidance and anti-takeover measures and influences firm value and shareholders' wealth . From the perspective of the signaling effect, leveraged funds often have the priority claim in leveraged esops, while employees' own funds have a residual claim. As a well-known incentive system, esops link employees' interests to firm value.
- Leveraged esops and crash risk. However, the regression results in Table 8 conflict with the signaling mechanism to some extent. The signaling effect supposes that the announcement of an ESOP indicates positive signals about a firm's value and reduces the influence of negative news on stock price. If esops do send positive signals, leveraged esops, in which participants take more risks, absolutely have stronger signaling effects and should be more helpful in reducing crash risk.
- Market situation, leveraged esops and crash risk. Table 9 shows that the positive relationship between ESOP leverage and crash risk is not caused by the negative signaling effect of leveraged esops but by a specific market situation. Before June 2015, leveraged esops did not result in increased crash risk . However, starting from June 2015, China's stock markets suffered drastic fluctuations and stock prices fell rapidly over a short period. It is possible that investors sold their stocks early to avoid losses caused by compulsory liquidation, which eventually increased crash risk. In sum, the

positive relationship between ESOP leverage and crash risk is caused by stock dumping due to forced liquidation rather than the signaling effect of leveraged esops.

- ESOP scale and crash risk. Another important characteristic of esops is the stock ownership size. In terms of signaling effects, larger-sized esops require employees to pay more money or assume higher risks through leveraged financing, thus sending a more convincing signal to the market that insiders are optimistic about a firm's value.
- ESOP price and crash risk. The regression results in Table 11 show that when measured by the absolute price, the regression coefficients of the share price are significant and positive. The higher the share price, the higher the firm's crash risk.
- Other tests. Tests on the signaling effect of esops show that employees participating in esops are more motivated to disclose firms' bad news. Does this affect executives' behavior and thus play an internal supervisory role? This issue is also worth testing. Esops link employee benefits with firm value. Employees of firms with esops are more likely to pay attention to stock price and its influencing factors which include executive behavior.  $CrashRisk_{i,t} = \alpha_0 + \alpha_1 ESOP_{i,t-1} + \alpha_2 Monitor_{i,t-1} + \alpha_3 ControlVariable_{i,t-1} + \alpha_4 ControlVariable_{i,t-1} + \epsilon_{i,t}$ , where  $Monitor_{i,t-1}$  is the level of other types of supervision imposed on executives.
- The effectiveness of PSM. Since most of our empirical tests are based on PSM matched samples, if the matching itself is invalid, the conclusion of this paper would also be invalid. To test the effectiveness of our PSM method, we first run Logit regressions and t-tests on the full sample and matched sample.
- Endogenous test using the difference-in-difference model. The decision to adopt an ESOP is made in light of various factors, including a firm's characteristics and the previous level of crash risk. Though we use a PSM approach to control variables affecting crash risk following previous studies, endogeneity due to omitted variables may still be a problem. The relationship between esops and price crash risk may be caused by factors not considered in this paper which affect ESOP adoption and crash risk simultaneously.

## HIGHLY INFLUENTIAL ARTICLE

We used the following article as a basis of our evaluation:

Li, Y., Sun, B., & Yu, S. (2019). Employee stock ownership plan and stock price crash risk. *Frontiers of Business Research in China*, 13(1), 1–33.

This is the link to the publisher's website:

<https://fbr.springeropen.com/articles/10.1186/s11782-019-0061-2>

## INTRODUCTION

The China Securities Regulatory Commission (CSRC) issued the “Guiding Opinions on the Pilot Program for the Implementation of the Employee Share Ownership Plans by Listed Companies” (“Opinions”) on June 20, 2014. ESOPs have been attracting more and more attention and recognition from China's listed companies. By December 31, 2017, more than 816 Chinese A-share listed companies had successively implemented ESOPs and many other companies have indicated that they intend to implement ESOPs. Are ESOPs an effective means to stabilize market sentiment and stock prices or an accelerator for market fluctuations and crash? The answer to this question is important to listed firms and regulators, especially in China where ESOPs are still relatively new and stock markets are still underdeveloped and often suffer from systematic sharp downturns.

There is considerable research on ESOPs and stock price crash risk respectively in the existing literature. However, limited research has been conducted on the influence of ESOPs on stock price crash risk directly. The most related research may be the influence of executive equity incentives on stock price crash risk. Ismail et al. (2016) argue that executives are more likely to announce good news in a timely manner and conceal bad news after the adoption of executive equity incentives. Kim et al. (2011b) study the relationship between executive equity incentives and stock price crash risk. They find that CFO option incentives increase future stock price crash risk. These two studies indicate that the relationship between ESOPs and crash risk may be positive.

However, although there are some similarities between ESOPs and executive equity incentives, the influence of ESOPs on stock price crash risk may be very different from that of executive equity incentives. First, as executive equity incentives target the top executives or executive team, the range of targets is often limited. The scope of ESOPs is undoubtedly wider and includes a substantial number of or most employees aside from executives. The number of insiders committed to firm value greatly increases and the difficulty executives have in concealing a firm's bad news is significantly higher after the adoption of an ESOP. Second, executives can exercise their options at any time after the exercise date in executive equity incentives in the form of stock options; hence they only need to pay attention to the stock price when they exercise their options. However, the selling of stock in the case of an ESOP needs the unanimous consent of the shareholder committee and must comply with strict laws and regulations. It is more complicated, difficult and time-consuming. Therefore, an ESOP is likely to contribute more to the long-term value of a firm instead of increasing the short-term stock price by concealing bad news. Last but not least, stock ownership incentives are often offered to executives freely or at a very low price, meaning money on the table for executives. Executives benefit as stock price increases and suffer no losses when prices drop. However, participation in ESOPs is not free. Employees need to pay for ESOPs in accordance with (in the case of purchase from the secondary market) or in reference to (in the case of private placement) the market price, even needing to assume extra liabilities in the case of leveraged ESOPs. If share prices fall below the ESOP purchase price, participants will suffer extra losses, and even go bankrupt due to margin closeout in the case of leveraged ESOPs. Therefore, compared with executive equity incentives, ESOP participants may be more conservative and less likely to increase share prices through short-term risk-taking behaviors increasing future crash risk. For these reasons, we assume that ESOPs may reduce stock price crash risk rather than increase it like executive equity incentives do.

To examine the actual influence of ESOPs on stock price crash risk, we conduct empirical tests using Chinese listed firms who adopted ESOPs from 2014 to 2017. Empirical results show that the announcement of an ESOP significantly decreases a firm's future stock price crash risk. The mechanism by which ESOPs affect crash risk is mainly through signaling effects, namely, ESOPs convey positive signals to the market that insiders are optimistic about the firm's future value, which helps build investors' confidence in the firm, mitigates the fall in stock price or a fire sale on stocks if there is bad news, and thus reduces stock price crash risk. The positive signals ESOPs convey to capital markets also include the likelihood that employees participating in ESOPs are more motivated in exposing firms' bad news, especially when their shares are within a lock-in period. This finding is consistent with previous research, which focuses mainly on the announcement effect of ESOPs. Beatty (1995) shows that ESOP announcements may provide investors with signals about firms' tax avoidance and anti-takeover behaviors. Conte et al. (1996) investigate the financial return and market reaction of ESOP announcements. They find that an ESOP announcement is a good signal to buy a firm's stock. Banerjee et al. (2017) examine the stock price performance of ESOP firms during economic crisis and recovery and find that ESOPs predict a lower fall in market capitalization during a crisis and a greater rise in market capitalization at the end of the crisis. External shareholders pay close attention to information signals generated by managerial actions [ESOPs and Seasoned Equity Offerings (SEOs)] that indicate resilience during an economic crisis.

This paper also finds that the impact of ESOPs on stock price crash risk depends on the characteristics of the ESOPs. In particular, the link between ESOPs and stock price crash risk is more pronounced in larger-scale ESOPs, which is consistent with the findings on the signaling effect of ESOPs, as larger-scale ESOPs convey stronger signals about employees' optimistic views on firms' future value. ESOPs with high prices

or financial leverage do not reduce crash risk and sometimes even raise it, which is inconsistent with the signaling effect. However, these inconsistent results do not mean the signaling effect is ineffective, but indicate special signals about liquidation pressure in a harsh market environment, which offset the positive signals sent by the ESOPs. Our results are robust to various sensitivity analyses.

Our study makes several contributions. First, this study contributes to the literature on the impact of ESOPs. This paper is the first so far directly testing the influence of ESOPs on the stability of capital markets from the perspective of stock price crash risk, while previous research focused mainly on employees' attitudes, firm performance, market reactions and abnormal returns. Our study enriches the perspectives on ESOP influence and is a necessary supplement to the existing literature.

Second, our study extends literature on the influence factors of stock price crash risk. Existing literature on factors affecting stock price crash risk mainly takes into account the concealment and concentrated disclosures of bad news, while this paper includes ESOPs into the study framework of stock price crash risk, and examines the influencing factors of stock price crash risk from the perspectives of insiders' signals sending and investor behaviors, which is an important extension of the existing literature.

Finally, this paper uses a specific period, namely "the stock market crash in 2015" to examine the impact of ESOPs on crash risk. It is a beneficial supplement to specific and situated studies on ESOPs, and it also sheds light on the further establishment and improvement of the relevant laws and regulations to the regulatory authorities.

The remainder of this paper is organized as follows. Institutional background introduces the history and basic background of ESOPs in China. literature review and hypotheses development section presents the literature review and theoretical hypotheses. Research design section describes the study design. In empirical results section, analysis and explanation of empirical results are presented. Conclusion section concludes.

## **CONCLUSION**

As an important initiative to comprehensively deepen reform and promote the healthy development of China's capital markets, ESOPs have received extensive attention from the government, listed firms and investors since they were first proposed. It is worthwhile to examine the influence of ESOPs on capital markets in the fields of both theory and practice. To better understand the impact of ESOPs in China, we conduct empirical tests using listed firms' announced ESOPs in A-share markets during the time period 2014 to 2017 and their matched samples using a PSM approach

The findings show that the adoption of ESOPs can reduce future crash risk mainly through signaling effects: ESOPs convey positive signals to capital markets that insiders are optimistic about firms' future value, which helps enhance investors' confidence, reduce the negative influence of bad information on stock price, and thus reduce stock price crash risk. Finally, we find that ESOP heterogeneity is of great importance to the influence of ESOPs on stock price crash risk. Larger scale, lower-priced, and non-leveraged ESOPs are more likely to reduce abnormal stock price fluctuations and decrease crash risk, while higher-priced and leveraged ESOPs only have a limited effect on crash risk reduction and sometimes may even raise the risk.

## APPENDIX

**TABLE 1**  
**SEMIANNUAL ESOP ADOPTIONS AND OBSERVATIONS**

Semiannual	ESOP adoptions	ESOP firm-semiannual observations
2014-2	49	98
2015-1	146	390
2015-2	208	666
2016-1	103	808
2016-2	70	896
2017-1	103	1032
2017-2	104	942
Total	783	4832

Notes. This table reports the number of ESOP adoptions and the number of firm-semiannual observations identified through PSM from the second half of 2014 (2014-2) to the second half of 2017 (2017-2)

**TABLE 2**  
**DESCRIPTIVE STATISTICS**

Variable	No. of obs.	Mean	P1	Median	P99	Std
Panel A: Event group (firms adopting ESOPs) + paired group						
<i>NCSKEW</i>	4832	-0.341	-1.745	-0.435	1.337	0.764
<i>DUVOL</i>	4832	-0.256	-1.375	-0.312	0.946	0.575
<i>ESOP</i>	4832	0.500	0	1	1	0.500
<i>Dturn</i>	4832	-0.315	-9.295	-0.266	4.188	1.552
<i>Hret</i>	4832	-0.013	-0.336	-0.081	1.407	0.036
<i>Sigma</i>	4832	0.030	0.013	0.026	0.064	0.013
<i>Size</i>	4832	22.239	20.598	22.146	24.015	0.931
<i>MB</i>	4832	2.871	0.027	2.147	12.597	3.042
<i>Lev</i>	4832	0.412	0.146	0.402	0.720	0.181
<i>ROA</i>	4832	2.140	-0.788	1.870	5.728	1.807
<i>DA</i>	4832	-0.017	-0.203	-0.026	0.182	0.109
Panel B: Sub-sample of companies adopting ESOPs						
<i>NCSKEW</i>	2416	-0.353	-1.745	-0.446	1.337	0.760
<i>DUVOL</i>	2416	-0.276	-1.254	-0.328	0.946	0.568
<i>Stock_ESOP</i>	2416	1.679	0.030	1.260	7.270	1.501
<i>Size_ESOP</i>	2416	9.310	6.358	9.220	11.918	1.145
<i>Price_ESOP</i>	2416	19.510	3.140	15.790	84.140	14.765
<i>R_price_ESOP</i>	2416	0.692	0	0.853	1.769	0.489
<i>Dum_Lev_ESOP</i>	2416	0.449	0	0	1	0.498
<i>Lev_ESOP</i>	2416	0.716	0	0	6.301	1.719
<i>Dturn</i>	2416	-0.296	-4.341	-0.250	3.910	1.466
<i>Hret</i>	2416	-0.006	-0.336	-0.078	1.540	0.318
<i>Sigma</i>	2416	0.030	0.013	0.026	0.064	0.014
<i>Size</i>	2416	22.235	20.737	22.157	24.015	0.881
<i>MB</i>	2416	2.819	0.201	2.235	11.080	2.389
<i>Lev</i>	2416	0.411	0.146	0.404	0.720	0.176
<i>ROA</i>	2416	2.180	-0.788	1.985	5.728	1.741
<i>DA</i>	2416	-0.023	-0.203	-0.031	0.182	0.106

Notes. This table presents descriptive statistics on stock price crash risk, executive compensation, and control variables. The sample contains firms adopting ESOPs from 2014 to 2017 and their paired firms. All variables are defined in section 3.2

**TABLE 3**  
**IMPACT OF ESOPS ON STOCK PRICE CRASH RISK**

Variable	Full samples		Paired samples	
	NCSKEW (1)	DUVOL (2)	NCSKEW (3)	DUVOL (4)
<i>ESOP</i> <sub><i>i,t-1</i></sub>	-0.104 <sup>c</sup> (-3.16)	-0.109 <sup>c</sup> (-4.19)	-0.025 <sup>b</sup> (-2.22)	-0.038 <sup>b</sup> (-2.47)
<i>Dturn</i> <sub><i>i,t-1</i></sub>	0.003 (0.63)	0.004 (0.91)	0.007 (0.99)	0.007 (1.25)
<i>Hret</i> <sub><i>i,t-1</i></sub>	0.238 <sup>c</sup> (22.09)	0.151 <sup>c</sup> (16.87)	0.705 <sup>c</sup> (11.83)	0.515 <sup>c</sup> (10.9)
<i>Sigma</i> <sub><i>i,t-1</i></sub>	-6.928 <sup>c</sup> (-21)	-5.675 <sup>c</sup> (-21.66)	-2.785 (-1.33)	-1.021 (-0.65)
<i>MB</i> <sub><i>i,t-1</i></sub>	0.02 <sup>c</sup> (5.96)	0.015 <sup>c</sup> (5.77)	0.016 <sup>c</sup> (3.76)	0.009 <sup>c</sup> (2.88)
<i>Size</i> <sub><i>i,t-1</i></sub>	-0.042 <sup>c</sup> (-9.29)	-0.029 <sup>c</sup> (-8.15)	-0.011 (-0.70)	-0.022 <sup>a</sup> (-1.85)
<i>Lev</i> <sub><i>i,t-1</i></sub>	0.028 <sup>b</sup> (2.39)	0.018 <sup>b</sup> (2.01)	0.128 (1.64)	0.041 (0.71)
<i>ROA</i> <sub><i>i,t-1</i></sub>	0.000 (-0.08)	0.000 (-0.10)	-0.03 <sup>c</sup> (-4.69)	-0.031 <sup>c</sup> (-6.60)
<i>DA</i> <sub><i>i,t-1</i></sub>	0.000 (-0.02)	0.000 (-0.11)	-0.138 (-1.30)	-0.107 (-1.35)
<i>NCSKEW</i> <sub><i>i,t-1</i></sub>	0.067 <sup>c</sup> (10.12)		0.108 <sup>c</sup> (6.87)	
<i>DUVOL</i> <sub><i>i,t-1</i></sub>		0.077 <sup>c</sup> (10.82)		0.119 <sup>c</sup> (7.01)
<i>Intercept</i>	0.938 <sup>c</sup> (8.72)	0.68 <sup>c</sup> (7.98)	0.075 (0.18)	0.524 <sup>a</sup> (1.69)
<i>Fix_ind</i>	Yes	Yes	Yes	Yes
<i>Fix_time</i>	Yes	Yes	Yes	Yes
Adj- <i>R</i> <sup>2</sup>	0.0541	0.0665	0.1554	0.1799
<i>No. of obs.</i>	25,391	25,391	4,832	4,832

Notes. This table presents the results of the impact of ESOPs on stock price crash risk using both full samples and paired samples. Full samples cover firms in China A-share markets from 2014 to 2017 with non-missing values for crash risk, ESOPs and control variables. Paired samples cover firms adopting ESOPs and their matched firms through PSM. The empirical test model is

$$\text{CrashRisk}_{i,t} = \alpha_0 + \alpha_1 \times \text{ESOP}_{i,t-1} + \alpha_2 \times \text{Control Variable}_{i,t-1} + \epsilon_{i,t}$$

The t-statistics, reported in parentheses, are based on standard errors clustered by both firm and time. Time and industry fixed effects are included. Here a, b, and c indicate statistical significance at the 10%, 5%, and 1% levels, respectively



**TABLE 4**  
**SIGNALING EFFECT OF ESOPS ON CRASH RISK**

Variable	DEPS		Punish		Lawsuit	
	NCSKEW (1)	DUVOL (2)	NCSKEW (3)	DUVOL (4)	NCSKEW (5)	DUVOL (6)
$ESOP_{i,t-1} \times DEPS_{i,t}$	-0.002 <sup>b</sup> (-2.28)	-0.002 <sup>c</sup> (-3.52)				
$ESOP_{i,t-1} \times Punish_{i,t}$			-0.008 <sup>b</sup> (-2.51)	-0.015 <sup>b</sup> (-1.98)		
$ESOP_{i,t-1} \times Lawsuit_{i,t}$					-0.005 <sup>c</sup> (-3.01)	-0.010 <sup>b</sup> (-2.27)
$ESOP_{i,t-1}$	-0.027 <sup>b</sup> (-2.13)	-0.04 <sup>b</sup> (-2.57)	-0.027 <sup>b</sup> (-2.17)	-0.044 <sup>c</sup> (-3.09)	-0.023 <sup>b</sup> (-2.01)	-0.035 <sup>b</sup> (-2.05)
$DEPS_{i,t}$	0.002 <sup>a</sup> (1.93)	0.002 <sup>a</sup> (1.68)				
$Punish_{i,t}$			0.059 <sup>b</sup> (1.91)	0.019 <sup>b</sup> (2.48)		
$Lawsuit_{i,t}$					0.066 <sup>a</sup> (1.82)	0.040 <sup>c</sup> (3.48)
$Dturn_{i,t-1}$	0.011 (1.47)	0.008 (1.51)	0.008 (1.09)	0.007 (1.22)	0.008 (1.11)	0.007 (1.23)
$Hret_{i,t-1}$	0.725 <sup>c</sup> (11.85)	0.54 <sup>c</sup> (11.21)	0.723 <sup>c</sup> (12.21)	0.527 <sup>c</sup> (11.21)	0.724 <sup>c</sup> (12.24)	0.527 <sup>c</sup> (11.21)
$Sigma_{i,t-1}$	-3.676 <sup>a</sup> (-1.70)	-1.761 (-1.10)	-2.902 (-1.38)	-1.239 (-0.79)	-3.092 (-1.47)	-1.343 (-0.86)
$MB_{i,t-1}$	0.023 <sup>c</sup> (3.67)	0.011 <sup>b</sup> (2.42)	0.016 <sup>c</sup> (3.69)	0.009 <sup>c</sup> (2.90)	0.016 <sup>c</sup> (3.74)	0.009 <sup>c</sup> (2.93)
$Size_{i,t-1}$	-0.004 (-0.26)	-0.023 <sup>a</sup> (-1.83)	-0.012 (-0.75)	-0.024 <sup>b</sup> (-1.97)	-0.012 (-0.75)	-0.023 <sup>a</sup> (-1.96)
$Lev_{i,t-1}$	0.158 <sup>a</sup> (1.91)	0.061 (0.99)	0.118 (1.50)	0.039 (0.68)	0.114 (1.46)	0.036 (0.62)
$ROA_{i,t-1}$	-0.033 <sup>c</sup> (-5.04)	-0.034 <sup>c</sup> (-6.96)	-0.028 <sup>c</sup> (-4.40)	-0.031 <sup>c</sup> (-6.49)	-0.027 <sup>c</sup> (-4.27)	-0.03 <sup>c</sup> (-6.38)
$DA_{i,t-1}$	-0.127 (-1.16)	-0.085 (-1.05)	-0.158 (-1.49)	-0.113 (-1.44)	-0.163 (-1.53)	-0.116 (-1.48)
$NCSKEW_{i,t-1}$	0.093 <sup>c</sup> (5.95)		0.09 <sup>c</sup> (5.88)		0.09 <sup>c</sup> (5.87)	
$DUVOL_{i,t-1}$		0.105 <sup>c</sup> (6.21)		0.103 <sup>c</sup> (6.22)		0.103 <sup>c</sup> (6.20)
Intercept	0.164 (0.41)	0.626 <sup>b</sup> (2.09)	0.304 (0.80)	0.615 <sup>b</sup> (2.18)	0.296 (0.78)	0.606 <sup>b</sup> (2.15)
Fix_ind	Yes	Yes	Yes	Yes	Yes	Yes
Fix_time	Yes	Yes	Yes	Yes	Yes	Yes
Adj-R <sup>2</sup>	0.1492	0.1771	0.1503	0.1768	0.1509	0.1773
No. of obs.	4634	4634	4832	4832	4832	4832

Notes. This table presents results of the relationship between ESOPs and crash risk when firms' negative information is disclosed, estimated by the equation:

$$CrashRisk_{i,t} = \alpha_0 + \alpha_1 \times ESOP_{i,t-1} \times Signali_{t-1} + \alpha_2 \times ESOP_{i,t-1} + \alpha_3 \times Signali_{t-1} + \alpha_4 \times ControlVariable_{t-1} + \epsilon_{i,t}$$

The *t*-statistics, reported in parentheses, are based on standard errors clustered by both firm and time. Time and industry fixed effects are included. Here <sup>a</sup>, <sup>b</sup>, and <sup>c</sup> indicate statistical significance at the 10%, 5%, and 1% levels, respectively

**TABLE 5**  
**STOCK PRICE PERFORMANCE AND INVESTOR TRADING BEHAVIOR AFTER**  
**NEGATIVE INFORMATION DISCLOSURE**

Variable	ESOP Firms (1)		Matched Samples (2)		Difference (1)-(2)	
	Means	No. of obs.	Means	No. of obs.	Means	t-value
CAR (0,5)	-0.126	706	-0.153	715	0.027 <sup>a</sup>	(8.33)
Stto	0.477	706	0.781	715	-0.304 <sup>a</sup>	(15.98)

Notes. This table presents the difference in price performance and investor trading behavior between ESOP firms and their matched ones after the disclosure of negative information using a t-test method CAR (0,5) is the cumulative abnormal returns adjusted by market line in the 5 days after bad news is disclosed, which measures stock price performance. Stto is firms' stock turnover ratio in the 30 trading days after negative information disclosure to measure investor trading behavior. Here <sup>a</sup> indicate statistical significance at the 1% levels

**TABLE 6**  
**MEDIATION EFFECT OF CAR (0,5) AND STTO ON THE RELATIONSHIP BETWEEN ESOPS AND CRASH RISK**

Variable	NCSKEW (1)	NCSKEW (2)	NCSKEW (3)	NCSKEW (4)	NCSKEW (5)	DUVOL (6)	DUVOL (7)	DUVOL (8)	DUVOL (9)	DUVOL (10)
<i>Intercept</i>	-1.968 <sup>c</sup> (-3.59)	-1.324 <sup>b</sup> (-2.53)	-1.321 <sup>b</sup> (-2.52)	-2.187 <sup>c</sup> (-4.03)	-2.189 <sup>c</sup> (-4.03)	-0.528 (-1.38)	-0.3 (-0.79)	-0.292 (-0.77)	-0.654 <sup>a</sup> (-1.71)	-0.65 <sup>a</sup> (-1.70)
<i>ESOP</i> <sub><i>i,t-1</i></sub>	-0.072 <sup>c</sup> (-3.05)		-0.035 (-0.79)		-0.019 (-0.41)	-0.062 <sup>b</sup> (-2.33)		-0.077 (-1.41)		-0.054 <sup>a</sup> (-1.67)
<i>CAR (0,5)</i>		-0.98 <sup>c</sup> (-15.54)	-0.983 <sup>c</sup> (-15.56)				-0.343 <sup>c</sup> (-7.55)	-0.349 <sup>c</sup> (-7.69)		
<i>Stto</i> <sub><i>i,t</i></sub>				0.336 <sup>c</sup> (7.10)	0.337 <sup>c</sup> (7.11)				0.201 <sup>c</sup> (6.03)	0.199 <sup>c</sup> (5.95)
<i>Dturn</i> <sub><i>i,t-1</i></sub>	-0.023 (-1.45)	-0.011 (-0.77)	-0.011 (-0.74)	-0.019 (-1.24)	-0.019 (-1.25)	-0.017 (-1.60)	-0.013 (-1.24)	-0.013 (-1.17)	-0.015 (-1.43)	-0.015 (-1.40)
<i>Hret</i> <sub><i>i,t-1</i></sub>	0.182 <sup>c</sup> (3.81)	0.268 <sup>c</sup> (5.85)	0.266 <sup>c</sup> (5.80)	0.202 <sup>c</sup> (4.28)	0.203 <sup>c</sup> (4.29)	0.222 <sup>c</sup> (6.33)	0.257 <sup>c</sup> (7.37)	0.251 <sup>c</sup> (7.21)	0.235 <sup>c</sup> (6.74)	0.23 <sup>c</sup> (6.60)
<i>Sigma</i> <sub><i>i,t-1</i></sub>	-20.149 <sup>c</sup> (-12.27)	-20.094 <sup>c</sup> (-12.84)	-20.142 <sup>c</sup> (-12.86)	-19.008 <sup>c</sup> (-11.65)	-18.979 <sup>c</sup> (-11.62)	-12.7 <sup>c</sup> (-10.93)	-12.348 <sup>c</sup> (-10.76)	-12.513 <sup>c</sup> (-10.90)	-11.938 <sup>c</sup> (-10.32)	-12.063 <sup>c</sup> (-10.41)
<i>MB</i> <sub><i>i,t-1</i></sub>	0.032 <sup>c</sup> (3.77)	0.017 <sup>b</sup> (2.12)	0.018 <sup>b</sup> (2.18)	0.03 <sup>c</sup> (3.65)	0.03 <sup>c</sup> (3.59)	0.012 <sup>b</sup> (2.03)	0.005 (0.93)	0.007 (1.15)	0.01 <sup>a</sup> (1.68)	0.011 <sup>a</sup> (1.84)
<i>Size</i> <sub><i>i,t-1</i></sub>	0.099 <sup>c</sup> (3.98)	0.07 <sup>c</sup> (2.94)	0.07 <sup>c</sup> (2.96)	0.104 <sup>c</sup> (4.22)	0.104 <sup>c</sup> (4.21)	0.037 <sup>b</sup> (2.12)	0.025 (1.47)	0.026 (1.52)	0.039 <sup>b</sup> (2.24)	0.039 <sup>b</sup> (2.28)
<i>Lev</i> <sub><i>i,t-1</i></sub>	0.091 (0.70)	-0.109 (-0.88)	-0.099 (-0.79)	-0.112 (-0.85)	-0.118 (-0.89)	-0.246 <sup>c</sup> (-2.70)	-0.344 <sup>c</sup> (-3.82)	-0.32 <sup>c</sup> (-3.54)	-0.39 <sup>c</sup> (-4.23)	-0.371 <sup>c</sup> (-4.00)
<i>ROA</i> <sub><i>i,t-1</i></sub>	-0.014 <sup>c</sup> (-2.83)	-0.008 (-1.58)	-0.007 (-1.56)	-0.013 <sup>b</sup> (-2.55)	-0.013 <sup>b</sup> (-2.56)	-0.015 <sup>c</sup> (-4.16)	-0.012 <sup>c</sup> (-3.57)	-0.012 <sup>c</sup> (-3.51)	-0.014 <sup>c</sup> (-4.00)	-0.014 <sup>c</sup> (-3.97)
<i>DA</i> <sub><i>i,t-1</i></sub>	-0.061 (-0.70)	-0.119 (-1.43)	-0.117 (-1.42)	-0.036 (-0.42)	-0.037 (-0.43)	0.012 (0.20)	-0.009 (-0.15)	-0.006 (-0.11)	0.025 (0.41)	0.027 (0.44)
<i>NCSKEW</i> <sub><i>i,t-1</i></sub>	0.124 <sup>c</sup> (5.00)	0.065 <sup>c</sup> (2.75)	0.067 <sup>c</sup> (2.82)	0.124 <sup>c</sup> (5.09)	0.123 <sup>c</sup> (5.01)					
<i>DUVOL</i> <sub><i>i,t-1</i></sub>						0.045 <sup>a</sup> (1.80)	0.069 <sup>c</sup> (2.78)	0.062 <sup>b</sup> (2.51)	0.042 <sup>a</sup> (1.70)	0.038 (1.50)
<i>Fix_ind</i>	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
<i>Fix_time</i>	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
<i>Adj-R<sup>2</sup></i>	0.1018	0.1827	0.1825	0.1199	0.1196	0.0715	0.0913	0.0931	0.0837	0.0844
<i>No. of obs.</i>	1421	1421	1421	1421	1421	1421	1421	1421	1421	1421

*Notes.* This table presents the regression results of the mediation effect of CAR(0,5) and *Stto* on the relationship between ESOPs and crash risk, estimated by regression equations system:

$$CrashRisk_{i,t} = \alpha_0 + \alpha_1 \times ESOP_{i,t-1} + \alpha_2 \times Control\ Variables_{t-1} + \varepsilon_{i,t}$$

$$CrashRisk_{i,t} = \alpha_0 + \alpha_1 \times Car(0,5)/Stto_{i,t} + \alpha_2 \times Control\ Variables_{t-1} + \varepsilon_{i,t}$$

$$CrashRisk_{i,t} = \alpha_0 + \alpha_1 \times ESOP_{i,t-1} + \alpha_2 \times Car(0,5)/Stto_{i,t} + \alpha_3 \times Control\ Variables_{t-1} + \varepsilon_{i,t}$$

The *t*-statistics, reported in parentheses, are based on standard errors clustered by both firm and time. Time and industry fixed effects are included. Here <sup>a</sup>, <sup>b</sup>, and <sup>c</sup> indicate statistical significance at the 10%, 5%, and 1% levels, respectively

**TABLE 7**  
**LOCK-IN PERIOD, ESOP AND CRASH RISK**

Variable	Lock-in period		After lock-in		DID test	
	NCSKEW (1)	DUVOL (2)	NCSKEW (3)	DUVOL (4)	NCSKEW (5)	DUVOL (6)
Intercept	0.726 <sup>b</sup> (2.01)	0.837 <sup>c</sup> (3.11)	0.975 (0.57)	0.603 (-0.50)	0.142 (0.24)	0.372 (0.85)
ESOP <sub>i,t-1</sub>					-0.033 <sup>a</sup>	-0.039 <sup>b</sup>
$\times$ Block <sub>i,t</sub>					(-1.73)	(-2.16)
ESOP <sub>i,t-1</sub>	-0.036 <sup>c</sup> (-2.68)	-0.046 <sup>c</sup> (-2.92)	-0.043 <sup>a</sup> (-1.92)	-0.288 (-1.54)	-0.463 (-1.45)	-0.361 (-1.54)
Block <sub>i,t</sub>					-0.003 <sup>b</sup> (-2.01)	-0.002 <sup>a</sup> (-1.76)
Dturn <sub>i,t-1</sub>	0.001 (0.06)	0.005 (0.61)	0.108 <sup>c</sup> (2.70)	0.04 (1.39)	0.007 (0.72)	0.007 (0.87)
Hret <sub>i,t-1</sub>	0.756 <sup>c</sup> (12.97)	0.556 <sup>c</sup> (11.95)	1.304 <sup>c</sup> (3.81)	0.824 <sup>c</sup> (2.93)	0.823 <sup>c</sup> (10.65)	0.592 <sup>c</sup> (9.72)
Sigma <sub>i,t-1</sub>	-1.197 (-0.57)	-0.1 (-0.06)	-6.411 (-0.74)	-1.808 (-0.29)	-0.922 (-0.34)	-0.77 (-0.38)
MB <sub>i,t-1</sub>	0.026 <sup>c</sup> (3.08)	0.016 <sup>b</sup> (2.51)	0.052 (1.38)	0.027 (1.01)	0.028 <sup>c</sup> (3.34)	0.017 <sup>c</sup> (2.80)
Size <sub>i,t-1</sub>	-0.031 <sup>b</sup> (-2.01)	-0.033 <sup>c</sup> (-2.87)	-0.037 (-0.50)	-0.032 (-0.60)	-0.021 (-0.97)	-0.025 (-1.58)
Lev <sub>i,t-1</sub>	0.103 (1.28)	0.026 (0.44)	0.387 (1.04)	0.246 (0.94)	0.058 (0.53)	-0.073 (-0.92)
ROA <sub>i,t-1</sub>	-0.022 <sup>c</sup> (-3.33)	-0.026 <sup>c</sup> (-5.41)	-0.067 <sup>b</sup> (-2.38)	-0.063 <sup>c</sup> (-3.16)	-0.038 <sup>c</sup> (-4.44)	-0.035 <sup>c</sup> (-5.49)
DA <sub>i,t-1</sub>	-0.158 (-1.45)	-0.111 (-1.37)	-0.679 (-1.39)	-0.448 (-1.30)	-0.21 (-1.42)	-0.123 (-1.13)
NCSKEW <sub>i,t-1</sub>	0.095 <sup>c</sup> (5.96)		0.079 (1.28)		0.062 <sup>c</sup> (2.98)	
DUVOL <sub>i,t-1</sub>		0.107 <sup>c</sup> (6.27)		0.111 (1.49)		0.09 <sup>c</sup> (4.00)
Fix_ind	Yes	Yes	Yes	Yes	Yes	Yes
Fix_time	Yes	Yes	Yes	Yes	Yes	Yes
Adj-R <sup>2</sup>	0.1495	0.1777	0.1292	0.11	0.1623	0.1875
No. of obs.	4517	4517	315	315	4832	4832

Notes. This table presents regression results of the relationship during and after an ESOP's lock-in period. Results (1) to (4) are estimated by regression equation:

$$CrashRisk_{i,t} = \alpha_0 + \alpha_1 \times ESOP_{i,t-1} + \alpha_2 \times Control\ Variables_{t-1} + \varepsilon_{i,t}$$

Results (5) and (6) are estimated by regression equation

$$CrashRisk_{i,t} = \alpha_0 + \alpha_1 \times ESOP_{i,t-1} \times Block_{i,t} + \alpha_2 \times ESOP_{i,t-1} + \alpha_3 \times Block_{i,t-1} + \alpha_4 \times Control\ Variable_{t-1} + \varepsilon_{i,t}$$

The  $t$ -statistics, reported in parentheses, are based on standard errors clustered by both firm and time. Time and industry fixed effects are included. Here <sup>a</sup>, <sup>b</sup>, and <sup>c</sup> indicate statistical significance at the 10%, 5%, and 1% levels, respectively

**TABLE 8**  
**LEVERAGED ESOPS AND CRASH RISK**

Variable	NCSKEW (1)	NCSKEW (2)	DUVOL (3)	DUVOL (4)
<i>Dum_Lev_ESOP</i> <sub><i>i,t-1</i></sub>	0.078 <sup>c</sup> (2.76)		0.028 <sup>b</sup> (2.31)	
<i>Lev_ESOP</i> <sub><i>i,t-1</i></sub>		0.018 <sup>b</sup> (2.18)		0.008 <sup>a</sup> (1.95)
<i>ESOP</i> <sub><i>i,t-1</i></sub>	-0.061 <sup>b</sup> (-2.52)	-0.039 <sup>a</sup> (-1.82)	-0.05 <sup>c</sup> (-2.80)	-0.044 <sup>c</sup> (-2.76)
<i>Dturn</i> <sub><i>i,t-1</i></sub>	0.008 (1.03)	0.008 (1.04)	0.007 (1.27)	0.007 (1.28)
<i>Hret</i> <sub><i>i,t-1</i></sub>	0.704 <sup>c</sup> (11.82)	0.703 <sup>c</sup> (11.79)	0.515 <sup>c</sup> (10.89)	0.514 <sup>c</sup> (10.87)
<i>Sigma</i> <sub><i>i,t-1</i></sub>	-2.824 (-1.35)	-2.769 (-1.32)	-1.034 (-0.66)	-1.015 (-0.65)
<i>MB</i> <sub><i>i,t-1</i></sub>	0.016 <sup>c</sup> (3.74)	0.016 <sup>c</sup> (3.71)	0.009 <sup>c</sup> (2.87)	0.009 <sup>c</sup> (2.85)
<i>Size</i> <sub><i>i,t-1</i></sub>	-0.009 (-0.58)	-0.011 (-0.67)	-0.021 <sup>a</sup> (-1.79)	-0.022 <sup>a</sup> (-1.84)
<i>Lev</i> <sub><i>i,t-1</i></sub>	0.113 (1.45)	0.12 (1.54)	0.036 (0.63)	0.039 (0.67)
<i>ROA</i> <sub><i>i,t-1</i></sub>	-0.029 <sup>c</sup> (-4.6)	-0.029 <sup>c</sup> (-4.61)	-0.031 <sup>c</sup> (-6.57)	-0.031 <sup>c</sup> (-6.57)
<i>DA</i> <sub><i>i,t-1</i></sub>	-0.134 (-1.26)	-0.136 (-1.28)	-0.106 (-1.34)	-0.106 (-1.35)
<i>NCSKEW</i> <sub><i>i,t-1</i></sub>	0.107 <sup>c</sup> (6.81)	0.108 <sup>c</sup> (6.83)		
<i>DUVOL</i> <sub><i>i,t-1</i></sub>			0.119 <sup>c</sup> (7.00)	0.118 <sup>c</sup> (6.99)
<i>Intercept</i>	0.273 (0.72)	0.311 (0.82)	0.569 <sup>b</sup> (2.02)	0.582 <sup>b</sup> (2.06)
<i>Fix_ind</i>	Yes	Yes	Yes	Yes
<i>Fix_time</i>	Yes	Yes	Yes	Yes
<i>Adj-R<sup>2</sup></i>	0.1564	0.1559	0.1802	0.1802
<i>No. of obs.</i>	4832	4832	4832	4832

*Notes.* This table presents the influence of ESOP leverage on stock price crash risk. The empirical test equation is:  
 $CrashRisk_{i,t} = \alpha_0 + \alpha_1 \times Dum\_lev\_ESOP_{i,t-1} + \alpha_2 \times Lev\_ESOP_{i,t-1} + \alpha_3 \times ESOP_{i,t-1} + \alpha_4 \times ControlVariable_{i,t-1} + \varepsilon_{i,t}$   
The *t*-statistics, reported in parentheses, are based on standard errors clustered by both firm and time. Time and industry fixed effects are included. Here <sup>a</sup>, <sup>b</sup>, and <sup>c</sup> indicate statistical significance at the 10%, 5%, and 1% levels, respectively

**TABLE 9**  
**MARKET SITUATION, LEVERAGED ESOPS AND CRASH RISK**

Variable	Pre-disaster				In-disaster				Post-disaster			
	NCSKEW (1)	NCSKEW (2)	DUVOL (3)	DUVOL (4)	NCSKEW (5)	NCSKEW (6)	DUVOL (7)	DUVOL (8)	NCSKEW (9)	NCSKEW (10)	DUVOL (11)	DUVOL (12)
<i>Dum_Lev_ESOP</i> <sub><i>i,t-1</i></sub>	0.087 (0.89)		0.019 (0.23)		0.015 <sup>b</sup> (2.21)		0.011 <sup>a</sup> (1.72)		0.08 <sup>b</sup> (2.44)		0.03 <sup>a</sup> (1.73)	
<i>Lev_ESOP</i> <sub><i>i,t-1</i></sub>		-0.003 (-0.13)		0.005 (0.27)		-0.004 (-0.19)		-0.011 (-0.78)		0.026 <sup>b</sup> (2.57)		0.014 <sup>a</sup> (1.83)
<i>ESOP</i> <sub><i>i,t-1</i></sub>	-0.217 <sup>c</sup> (-2.84)	-0.188 <sup>c</sup> (-2.64)	-0.16 <sup>b</sup> (-2.47)	-0.156 <sup>c</sup> (-2.62)	0.015 (0.25)	0.024 (0.46)	-0.004 (-0.09)	0 (-0.01)	-0.053 <sup>a</sup> (-1.89)	-0.035 <sup>b</sup> (-2.41)	-0.042 <sup>b</sup> (-2.05)	-0.039 <sup>b</sup> (-2.12)
<i>Dturn</i> <sub><i>i,t-1</i></sub>	-0.049 <sup>a</sup> (-1.94)	-0.049 <sup>a</sup> (-1.95)	-0.023 (-1.07)	-0.022 (-1.05)	-0.047 <sup>c</sup> (-3.04)	-0.047 <sup>c</sup> (-3.07)	-0.03 <sup>c</sup> (-2.59)	-0.03 <sup>c</sup> (-2.61)	0.014 (1.51)	0.014 (1.52)	0.01 (1.53)	0.01 (1.53)
<i>Hret</i> <sub><i>i,t-1</i></sub>	0.622 <sup>c</sup> (7.21)	0.63 <sup>c</sup> (7.29)	0.48 <sup>c</sup> (6.25)	0.48 <sup>c</sup> (6.27)	0.866 <sup>c</sup> (5.88)	0.865 <sup>c</sup> (5.88)	0.667 <sup>c</sup> (5.69)	0.667 <sup>c</sup> (5.69)	1.093 <sup>c</sup> (11.43)	1.094 <sup>c</sup> (11.43)	0.859 <sup>c</sup> (10.95)	0.86 <sup>c</sup> (10.96)
<i>Sigma</i> <sub><i>i,t-1</i></sub>	-18.779 <sup>c</sup> (-2.92)	-18.734 <sup>c</sup> (-2.91)	-12.917 <sup>b</sup> (-2.36)	-12.897 <sup>b</sup> (-2.36)	10.535 <sup>b</sup> (2.28)	10.646 <sup>b</sup> (2.31)	10.024 <sup>c</sup> (2.86)	10.086 <sup>c</sup> (2.89)	-2.894 (-1.15)	-2.792 (-1.11)	-1.116 (-0.60)	-1.061 (-0.58)
<i>MB</i> <sub><i>i,t-1</i></sub>	0.018 (1.42)	0.018 (1.43)	0.013 (1.23)	0.013 (1.22)	0.018 <sup>b</sup> (2.23)	0.018 <sup>b</sup> (2.24)	0.011 <sup>a</sup> (1.84)	0.011 <sup>a</sup> (1.86)	0.012 <sup>b</sup> (2.37)	0.012 <sup>b</sup> (2.33)	0.007 <sup>a</sup> (1.76)	0.007 <sup>a</sup> (1.73)
<i>Size</i> <sub><i>i,t-1</i></sub>	0.045 (0.87)	0.048 (0.92)	0.052 (1.18)	0.052 (1.19)	0.06 (1.44)	0.06 (1.44)	0.077 <sup>b</sup> (2.42)	0.077 <sup>b</sup> (2.43)	-0.04 <sup>b</sup> (-2.15)	-0.042 <sup>b</sup> (-2.26)	-0.054 <sup>c</sup> (-3.95)	-0.055 <sup>c</sup> (-4.01)
<i>Lev</i> <sub><i>i,t-1</i></sub>	0.223 (0.92)	0.207 (0.86)	0.029 (0.14)	0.028 (0.14)	0.096 (0.52)	0.097 (0.52)	0.043 (0.31)	0.043 (0.31)	0.099 (1.08)	0.109 (1.20)	0.032 (0.47)	0.035 (0.52)
<i>ROA</i> <sub><i>i,t-1</i></sub>	-0.028 (-1.30)	-0.031 (-1.45)	-0.024 (-1.33)	-0.024 (-1.34)	-0.024 (-1.65)	-0.024 <sup>a</sup> (-1.66)	-0.024 <sup>b</sup> (-2.19)	-0.024 <sup>b</sup> (-2.17)	-0.031 <sup>c</sup> (-4.12)	-0.031 <sup>c</sup> (-4.08)	-0.034 <sup>c</sup> (-6.18)	-0.034 <sup>c</sup> (-6.16)
<i>DA</i> <sub><i>i,t-1</i></sub>	-0.082 (-0.22)	-0.086 (-0.23)	0.044 (0.14)	0.044 (0.14)	-0.185 (-0.79)	-0.183 (-0.78)	-0.305 <sup>a</sup> (-1.73)	-0.296 <sup>a</sup> (-1.67)	-0.19 (-1.52)	-0.189 (-1.52)	-0.111 (-1.22)	-0.11 (-1.21)
<i>NCSKEW</i> <sub><i>i,t-1</i></sub>	0.184 <sup>b</sup> (2.22)	0.195 <sup>b</sup> (2.37)			0.215 <sup>c</sup> (5.17)	0.215 <sup>c</sup> (5.17)			0.108 <sup>c</sup> (5.97)	0.109 <sup>c</sup> (6.00)		
<i>DUVOL</i> <sub><i>i,t-1</i></sub>			0.056 (0.72)	0.057 (0.73)			0.252 <sup>c</sup> (6.04)	0.253 <sup>c</sup> (6.07)			0.141 <sup>c</sup> (6.82)	0.141 <sup>c</sup> (6.84)
<i>Intercept</i>	-1.052 (-0.84)	-1.061 (-0.85)	-1.476 (-1.40)	-1.479 (-1.41)	-2.253 <sup>b</sup> (-2.20)	-2.257 <sup>b</sup> (-2.21)	-2.487 <sup>c</sup> (-3.21)	-2.494 <sup>c</sup> (-3.22)	0.961 <sup>b</sup> (2.16)	1.006 <sup>b</sup> (2.26)	1.34 <sup>c</sup> (4.12)	1.354 <sup>c</sup> (4.17)
<i>Fix_ind</i>	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
<i>Fix_time</i>	Yes	Yes	Yes	Yes	-	-	-	-	Yes	Yes	Yes	Yes
<i>Adj-R<sup>2</sup></i>	0.2236	0.2215	0.201	0.2013	0.0949	0.0949	0.1112	0.1121	0.1377	0.1378	0.1453	0.1457
<i>No. of obs.</i>	354	354	354	354	662	662	662	662	3816	3816	3816	3816

Notes. This table presents the influence of ESOP leverage on stock price crash risk over three sub samples: pre-disaster (samples before June 2015), in-disaster (samples from June 2015 to October 2015) and post-disaster (samples after October 2015). The empirical test equation is:

$$CrashRisk_{i,t} = \alpha_0 + \alpha_1 \times Dum\_lev\_ESOP_{i,t-1} + \alpha_2 \times Lev\_ESOP_{i,t-1} + \alpha_3 \times ControlVariables_{i,t-1} + \epsilon_{i,t}$$

The t-statistics, reported in parentheses, are based on standard errors clustered by both firm and time. Time and industry fixed effects are included. Here a, b, and c indicate statistical significance at the 10%, 5%, and 1% levels, respectively

**TABLE 10**  
**ESOP SCALE AND CRASH RISK**

Variable	NCSKEW (1)	NCSKEW (2)	DUVOL (3)	DUVOL (4)
<i>Size_ESOP</i> <sub><i>i,t-1</i></sub>	-0.003		-0.004	
	(-0.38)		(-0.62)	
<i>Stock_ESOP</i> <sub><i>i,t-1</i></sub>		-0.003 <sup>c</sup>		-0.006
		(-2.37)		(-4.03)
<i>ESOP</i> <sub><i>i,t-1</i></sub>	-0.054 <sup>c</sup>	-0.031 <sup>c</sup>	-0.004 <sup>b</sup>	-0.038 <sup>c</sup>
	(-2.71)	(-4.24)	(-2.08)	(-3.03)
<i>Dturn</i> <sub><i>i,t-1</i></sub>	0.008	0.008	0.007	0.007
	(1.02)	(1.03)	(1.27)	(1.27)
<i>Hret</i> <sub><i>i,t-1</i></sub>	0.705 <sup>c</sup>	0.705 <sup>c</sup>	0.515 <sup>c</sup>	0.515 <sup>c</sup>
	(11.82)	(11.81)	(10.91)	(10.89)
<i>Sigma</i> <sub><i>i,t-1</i></sub>	-2.79	-2.779	-1.02	-1.022
	(-1.33)	(-1.33)	(-0.65)	(-0.66)
<i>MB</i> <sub><i>i,t-1</i></sub>	0.016 <sup>c</sup>	0.016 <sup>c</sup>	0.009 <sup>c</sup>	0.009 <sup>c</sup>
	(3.73)	(3.76)	(2.89)	(2.87)
<i>Size</i> <sub><i>i,t-1</i></sub>	-0.012	-0.011	-0.021 <sup>a</sup>	-0.022 <sup>a</sup>
	(-0.73)	(-0.67)	(-1.73)	(-1.84)
<i>Lev</i> <sub><i>i,t-1</i></sub>	0.121	0.121	0.04	0.039
	(1.55)	(1.56)	(0.70)	(0.68)
<i>ROA</i> <sub><i>i,t-1</i></sub>	-0.03 <sup>c</sup>	-0.03 <sup>c</sup>	-0.031 <sup>c</sup>	-0.031 <sup>c</sup>
	(-4.65)	(-4.62)	(-6.55)	(-6.59)
<i>DA</i> <sub><i>i,t-1</i></sub>	-0.135	-0.135	-0.106	-0.106
	(-1.27)	(-1.28)	(-1.34)	(-1.35)
<i>NCSKEW</i> <sub><i>i,t-1</i></sub>	0.108 <sup>c</sup>	0.108 <sup>c</sup>		
	(6.88)	(6.88)		
<i>DUVOL</i> <sub><i>i,t-1</i></sub>			0.119 <sup>c</sup>	0.119 <sup>c</sup>
			(7.02)	(7.01)
<i>Intercept</i>	0.342	0.317	0.561 <sup>b</sup>	0.586 <sup>b</sup>
	(0.89)	(0.84)	(1.97)	(2.08)
<i>Fix_ind</i>	Yes	Yes	Yes	Yes
<i>Fix_time</i>	Yes	Yes	Yes	Yes
<i>Adj-R</i> <sup>2</sup>	0.1551	0.1551	0.1799	0.1799
<i>No. of obs.</i>	4832	4832	4832	4832

Notes. This table presents the influence of ESOP scale on stock price crash risk. The empirical test equation is:  
 $CrashRisk_{i,t} = \alpha_0 + \alpha_1 \times Size\_ESOP_{i,t-1} + \alpha_2 \times Stock\_ESOP_{i,t-1} + \alpha_3 \times ESOP_{i,t-1} + \alpha_4 \times ControlVariables_{i,t-1} + \epsilon_{i,t}$   
The t-statistics, reported in parentheses, are based on standard errors clustered by both firm and time. Time and industry fixed effects are included. Here a, b, and c indicate statistical significance at the 10%, 5%, and 1% levels, respectively

**TABLE 11**  
**ESOP PRICE AND CRASH RISK**

Variable	NCSKEW (1)	NCSKEW (2)	DUVOL (3)	DUVOL (4)
<i>Price_ESOP</i> <sub><i>i,t-1</i></sub>	0.002 <sup>a</sup> (1.70)		0.001 (1.17)	
<i>R_Price_ESOP</i> <sub><i>i,t-1</i></sub>		-0.039 (-1.34)		-0.033 (-1.52)
<i>ESOP</i> <sub><i>i,t-1</i></sub>	-0.057 <sup>b</sup> (-2.06)	-0.011 <sup>c</sup> (-3.05)	-0.054 <sup>c</sup> (-2.63)	-0.015 <sup>c</sup> (-5.70)
<i>Dturn</i> <sub><i>i,t-1</i></sub>	0.008 (1.03)	0.007 (0.99)	0.007 (1.27)	0.007 (1.22)
<i>Hret</i> <sub><i>i,t-1</i></sub>	0.705 <sup>c</sup> (11.82)	0.709 <sup>c</sup> (11.88)	0.514 <sup>c</sup> (10.88)	0.518 <sup>c</sup> (10.96)
<i>Sigma</i> <sub><i>i,t-1</i></sub>	-2.931 (-1.40)	-2.697 (-1.29)	-1.103 (-0.71)	-0.942 (-0.60)
<i>MB</i> <sub><i>i,t-1</i></sub>	0.015 <sup>c</sup> (3.63)	0.016 <sup>c</sup> (3.73)	0.009 <sup>c</sup> (2.79)	0.009 <sup>c</sup> (2.86)
<i>Size</i> <sub><i>i,t-1</i></sub>	-0.009 (-0.54)	-0.012 (-0.72)	-0.021 <sup>a</sup> (-1.75)	-0.023 <sup>a</sup> (-1.89)
<i>Lev</i> <sub><i>i,t-1</i></sub>	0.113 (1.45)	0.121 (1.56)	0.035 (0.61)	0.039 (0.68)
<i>ROA</i> <sub><i>i,t-1</i></sub>	-0.031 <sup>c</sup> (-4.83)	-0.029 <sup>c</sup> (-4.61)	-0.032 <sup>c</sup> (-6.69)	-0.031 <sup>c</sup> (-6.56)
<i>DA</i> <sub><i>i,t-1</i></sub>	-0.131 (-1.23)	-0.133 (-1.25)	-0.104 (-1.32)	-0.104 (-1.33)
<i>NCSKEW</i> <sub><i>i,t-1</i></sub>	0.107 <sup>c</sup> (6.75)	0.109 <sup>c</sup> (6.90)		
<i>DUVOL</i> <sub><i>i,t-1</i></sub>			0.117 <sup>c</sup> (6.92)	0.119 <sup>c</sup> (7.04)
<i>Intercept</i>	0.282 (0.74)	0.333 (0.88)	0.567 <sup>b</sup> (2.01)	0.596 <sup>b</sup> (2.11)
<i>Fix_ind</i>	Yes	Yes	Yes	Yes
<i>Fix_time</i>	Yes	Yes	Yes	Yes
<i>Adj-R</i> <sup>2</sup>	0.1556	0.1554	0.1801	0.1803
<i>No. of obs.</i>	4832	4832	4832	4832

Notes. This table presents the influence of ESOP price on stock price crash risk. The empirical test equation is:  
 $CrashRisk_{i,t} = \alpha_0 + \alpha_1 \times Price\_ESOP_{i,t-1} + \alpha_2 \times R\_Price\_ESOP_{i,t-1} + \alpha_3 \times ESOP_{i,t-1} + \alpha_4 \times ControlVariables_{i,t-1} + \epsilon_{i,t}$

The t-statistics, reported in parentheses, are based on standard errors clustered by both firm and time. Time and industry fixed effects are included. Here a, b, and c indicate statistical significance at the 10%, 5%, and 1% levels, respectively



**TABLE 12**  
**ESOPS AND CRASH RISK: DID MODEL**

Variable	NCSKEW (1)	DUVOL (2)
$ESOP_{i,t-1} \times After_{i,t}$	-0.177 <sup>c</sup> (-3.05)	-0.143 <sup>c</sup> (-3.00)
$ESOP_{i,t-1}$	-0.005 (-0.32)	-0.016 (-1.13)
$After_{i,t}$	0.093 <sup>b</sup> (2.39)	0.087 <sup>c</sup> (2.73)
$Dturn_{i,t-1}$	-0.019 <sup>c</sup> (-2.86)	-0.01 <sup>a</sup> (-1.69)
$Hret_{i,t-1}$	0.318 <sup>c</sup> (9.97)	0.22 <sup>c</sup> (7.97)
$Sigma_{i,t-1}$	-3.959 <sup>b</sup> (-2.40)	-2.447 <sup>a</sup> (-1.78)
$MB_{i,t-1}$	0.013 <sup>c</sup> (3.78)	0.012 <sup>c</sup> (4.23)
$Size_{i,t-1}$	0.036 <sup>c</sup> (3.10)	0.052 <sup>c</sup> (5.46)
$Lev_{i,t-1}$	0.046 (0.81)	-0.054 (-1.16)
$ROA_{i,t-1}$	0.006 (1.25)	0.002 (0.62)
$DA_{i,t-1}$	-0.116 (-1.35)	-0.075 (-1.06)
$NCSKEW_{i,t-1}$	0.079 <sup>c</sup> (5.02)	
$DUVOL_{i,t-1}$		0.066 <sup>c</sup> (3.81)
Intercept	-1.362 <sup>c</sup> (-4.90)	-1.689 <sup>c</sup> (-7.37)
Fix_ind	Yes	Yes
Fix_time	No	No
Adj-R <sup>2</sup>	0.0487	0.0664
No. of obs.	5517	5517

Notes. This table reports the influence of ESOPs on crash risk using a DID model. The empirical test equation is:  $CrashRisk_{i,t} = \alpha_0 + \alpha_1 \times ESOP_{i,t-1} \times After_{i,t} + \alpha_2 \times ESOP_{i,t-1} + \alpha_3 \times After_{i,t} + \alpha_4 \times ControlVariable_{i,t-1} + \epsilon_{i,t}$ . The t-statistics, reported in parentheses, are based on standard errors clustered by both firm and time. Time and industry fixed effects are included. Here a, b, and c indicate statistical significance at the 10%, 5%, and 1% levels, respectively

## REFERENCES

- Agrawal, A., & Mandelker, G. N. (1987). Managerial incentives and corporate investment and financing decisions. *The Journal of Finance*, 42(4), 823–837.
- Ahrens, C. (2018). The effect of stock based incentives on individual manager performance. In *Academy of management proceedings* (2018, 1, 16304). Briarcliff Manor: Academy of Management.
- Akerlof, G. A. (1982). Labor contracts as partial gift exchange. *The Quarterly Journal of Economics*, 97(4), 543–569.

- Banerjee, A., Lampel, J., Bhalla, A. (2017). Employee ownership schemes as resilience signals during economic crisis and recovery. In *Academy of management proceedings* (2017, 1, 15243). Briarcliff Manor: Academy of Management.
- Beatty, A. (1994). An empirical analysis of the corporate control, tax and incentive motivations for adopting leveraged employee stock ownership plans. *Managerial and Decision Economics*, 15(4), 299–315.
- Beatty, A. (1995). The cash flow and informational effects of employee stock ownership plans. *Journal of Financial Economics*, 38(2), 211–240.
- Brecher, A. G., Lazarus, S., III, & Gray, W. A. (1983). The function of employee retirement plans as an impediment to takeovers. *The Business Lawyer*, 38(2), 503–513.
- Brown, S., Fakhfakh, F., & Sessions, J. G. (1999). Absenteeism and employee sharing: An empirical analysis based on French panel data, 1981–1991. *ILR Review*, 52(2), 234–251.
- Buchko, A. A. (1992). Effects of employee ownership on employee attitudes: A test of three theoretical perspectives. *Work and Occupations*, 19(1), 59–78.
- Chang, S. (1990). Employee stock ownership plans and shareholder wealth: An empirical investigation. *Financial Management*, 19(1), 48–58.
- Chang, S., & Mayers, D. (1992). Managerial vote ownership and shareholder wealth: Evidence from employee stock ownership plans. *Journal of Financial Economics*, 32(1), 103–131.
- Chaplinsky, S., & Niehaus, G. (1990). The tax and distributional effects of leveraged ESOPs. *Financial Management*, 19(1), 29–38.
- Chaplinsky, S., & Niehaus, G. (1994). The role of ESOPs in takeover contests. *The Journal of Finance*, 49(4), 1451–1470.
- Chen, J., Hong, H., & Stein, J. C. (2001). Forecasting crashes: Trading volume, past returns, and conditional skewness in stock prices. *Journal of Financial Economics*, 61(3), 345–381.
- Chu, J., & Fang, J. X. (2016). Margin-trading, short-selling and the deterioration of crash risk. *Economic Research Journal*, (5), 143–158.
- Cohen, R. B., Hall, B. J., & Viceira, L. M. (2000). Do executive stock options encourage risk-taking.
- Comment, R., & Jarrell, G. A. (1987). Two-tier and negotiated tender offers: The imprisonment of the free-riding shareholder. *Journal of Financial Economics*, 19(2), 283–310.
- Conte, M. A., Blasi, J., Kruse, D., & Jampani, R. (1996). Financial returns of public ESOP companies: Investor effects vs. manager effects. *Financial Analysts Journal*, 52(4), 51–61.
- Conte, M., & Tannenbaum, A. S. (1978). Employee-owned companies: Is the difference measurable. *Monthly Labor Review*, 101(7), 23–28.
- Core, J. E., & Guay, W. R. (2001). Stock option plans for non-executive employees. *Journal of Financial Economics*, 61(2), 253–287.
- De Fusco, R. A., Johnson, R. R., & Zorn, T. S. (1990). The effect of executive stock option plans on stockholders and bondholders. *The Journal of Finance*, 45(2), 617–627.
- Ding, D. K., & Sun, Q. (2001). Causes and effects of employee stock option plans: Evidence from Singapore. *Pacific-Basin Finance Journal*, 9(5), 563–599.
- Dyck, A., Morse, A., & Zingales, L. (2010). Who blows the whistle on corporate fraud? *The Journal of Finance*, 65(6), 2213–2253.
- Fang, H., Nofsinger, J. R., & Quan, J. (2015). The effects of employee stock option plans on operating performance in Chinese firms. *Journal of Banking & Finance*, 54, 141–159.
- Goldstein, I., & Guembel, A. (2008). Manipulation and the allocational role of prices. *The Review of Economic Studies*, 75(1), 133–164.
- Gordon, L. A., & Pound, J. (1990). ESOPs and corporate control. *Journal of Financial Economics*, 27(2), 525–555.
- Hall, B. J., & Murphy, K. J. (2000). Optimal exercise prices for executive stock options. *American Economic Review*, 90(2), 209–214.
- Hall, B. J., & Murphy, K. J. (2002). Stock options for undiversified executives. *Journal of Accounting and Economics*, 33(1), 3–42.

- Hall, B. J., & Murphy, K. J. (2003). The trouble with stock options. *Journal of Economic Perspectives*, 17(3), 49–70.
- Hammer, T. H., Landau, J. C., & Stern, R. N. (1981). Absenteeism when workers have a voice: The case of employee ownership. *Journal of Applied Psychology*, 66(5), 561.
- Haugen, R. A., & Senbet, L. W. (1981). Resolving the agency problems of external capital through options. *The Journal of Finance*, 36(3), 629–647.
- Holden, S., & van Derhei, J. (2003). 401 (k) plan asset allocation, account balances, and loan activity in 2002. *EBRI Issue Brief*, 28(261), 1.
- Huddart, S. (1994). Employee stock options. *Journal of Accounting and Economics*, 18(2), 207–231.
- Huddart, S., & Lang, M. (1996). Employee stock option exercises an empirical analysis. *Journal of Accounting and Economics*, 21(1), 5–43.
- Hutton, A. P., Marcus, A. J., & Tehranian, H. (2009). Opaque financial reports, R2, and crash risk. *Journal of Financial Economics*, 94(1), 67–86.
- Ismail, Z., Mahjom, N., Hashim, E., & Dockery, E. (2016). Executive stock options plans and its effect on short-run corporate performance. *Journal of Contemporary Issues and Thought*, 6, 102–114.
- Jensen, M. C., & Murphy, K. J. (1990). Performance pay and top-management incentives. *Journal of Political Economy*, 98(2), 225–264.
- Jin, L., & Myers, S. C. (2006). R2 around the world: New theory and new tests. *Journal of Financial Economics*, 79(2), 257–292.
- Jones, D. C., & Pliskin, J. (1997). Determinants of the incidence of group incentives: Evidence from Canada. *Canadian Journal of Economics*, 30(4b), 1027–1045.
- Kim, E. H., & Ouimet, P. (2011). Employee stock ownership plans: Employee compensation and firm value. *SSRN Electronic Journal*. <https://doi.org/10.2139/ssrn.1823745>
- Kim, E. H., & Ouimet, P. (2014). Broad-based employee stock ownership: Motives and outcomes. *The Journal of Finance*, 69(3), 1273–1319.
- Kim, J. B., Li, Y., & Zhang, L. (2011a). Corporate tax avoidance and stock price crash risk: Firm-level analysis. *Journal of Financial Economics*, 100(3), 639–662.
- Kim, J. B., Li, Y., & Zhang, L. (2011b). CFOs versus CEOs: Equity incentives and crashes. *Journal of Financial Economics*, 101(3), 713–730.
- Kumbhakar, S. C., & Dunbar, A. E. (1993). The elusive ESOP—Productivity link: Evidence from US firm-level data. *Journal of Public Economics*, 52(2), 273–283.
- Mitchell, O. S., & Utkus, S. P. (2002). The role of company stock in defined contribution plans (NBER working papers no. w9250). Cambridge: National Bureau of Economic Research.
- Park, H. (2017). Company stock in defined contribution plans: Evidence from proxy voting. *Financial Management*, 46(1), 155–202.
- Piotroski, J. D., Wong, T. J., & Zhang, T. (2015). Political incentives to suppress negative information: Evidence from Chinese listed firms. *Journal of Accounting Research*, 53(2), 405–459.
- Poterba, J. (2004). Valuing assets in retirement saving accounts (NBER working papers no. w10395). Cambridge: National Bureau of Economic Research.
- Pugh, W. N., Oswald, S. L., & Jahera, J. S., Jr. (2000). The effect of ESOP adoptions on corporate performance: Are there really performance changes? *Managerial and Decision Economics*, 21(5), 167–180.
- Quarrey, M., Blasi, J. R., & Rosen, C. M. (1986). *Taking stock: Employee ownership at work*. Cambridge, MA: Ballinger Publishing Company.
- Rajgopal, S., & Shevlin, T. (2002). Empirical evidence on the relation between stock option compensation and risk taking. *Journal of Accounting and Economics*, 33(2), 145–171.
- Rauh, J. D. (2006). Own company stock in defined contribution pension plans: A takeover defense? *Journal of Financial Economics*, 81(2), 379–410.
- Rosen, C., & Quarrey, M. (1987). How well is employee ownership working? *Harvard Business Review*, 65(5), 126–132.

- Shackelford, D. A. (1991). The market for tax benefits: Evidence from leveraged ESOPs. *Journal of Accounting and Economics*, 14(2), 117–145.
- Tehrani, H., & Waagelein, J. F. (1985). Market reaction to short-term executive compensation plan adoption. *Journal of Accounting and Economics*, 7(1–3), 131–144.
- Triki, T., & Ureche-Rangau, L. (2012). Stock options and firm performance: New evidence from the French market. *Journal of International Financial Management & Accounting*, 23(2), 154–185.
- Xu, N., Jiang, X., Chan, K. C., & Yi, Z. (2013). Analyst coverage, optimism, and stock price crash risk: Evidence from China. *Pacific-Basin Finance Journal*, 25, 217–239.

## **TRANSLATED VERSION: SPANISH**

Below is a rough translation of the insights presented above. This was done to give a general understanding of the ideas presented in the paper. Please excuse any grammatical mistakes and do not hold the original authors responsible for these mistakes.

## **VERSION TRADUCIDA: ESPAÑOL**

A continuación se muestra una traducción aproximada de las ideas presentadas anteriormente. Esto se hizo para dar una comprensión general de las ideas presentadas en el documento. Por favor, disculpe cualquier error gramatical y no responsabilite a los autores originales de estos errores.

## **INTRODUCCIÓN**

La Comisión Reguladora de Valores de China (CSRC) publicó los "Dictámenes rectores sobre el programa piloto para la aplicación de los planes de participación de los empleados por las empresas cotizadas" ("Dictámenes") el 20 de junio de 2014. Los ESOP han estado atrayendo cada vez más atención y reconocimiento de las empresas cotizadas de China. Para el 31 de diciembre de 2017, más de 816 empresas cotizadas en la lista A chinas habían implementado sucesivamente esops y muchas otras empresas han indicado que tienen la intención de implementar esops. ¿Son los ESOP un medio eficaz para estabilizar el sentimiento del mercado y los precios de las acciones o un acelerador para las fluctuaciones y la caída del mercado? La respuesta a esta pregunta es importante para las empresas y reguladores que cotizan en bolsa, especialmente en China, donde los ESOP siguen siendo relativamente nuevos y los mercados bursátiles siguen subdesarrollados y a menudo sufren caídas bruscas sistemáticas.

Hay una investigación considerable sobre esops y riesgo de caída de los precios de las acciones, respectivamente, en la literatura existente. Sin embargo, se han llevado a cabo investigaciones limitadas sobre la influencia de los ESOP en el riesgo de caída del precio de las acciones directamente. La investigación más relacionada puede ser la influencia de los incentivos de capital ejecutivo en el riesgo de caída del precio de las acciones. (2016) argumentan que los ejecutivos son más propensos a anunciar buenas noticias de manera oportuna y ocultar malas noticias después de la adopción de incentivos de equidad ejecutiva. (2011b) estudian la relación entre los incentivos de capital ejecutivo y el riesgo de caída del precio de las acciones. Encuentran que los incentivos a las opciones de CFO aumentan el riesgo futuro de desplome del precio de las acciones. Estos dos estudios indican que la relación entre esops y riesgo de accidente puede ser positiva.

Sin embargo, aunque existen algunas similitudes entre los ESOP y los incentivos de capital ejecutivo, la influencia de los ESOP en el riesgo de caída del precio de las acciones puede ser muy diferente de la de los incentivos de capital ejecutivo. En primer lugar, a medida que los incentivos de equidad ejecutiva se dirigen a los altos ejecutivos o al equipo ejecutivo, la gama de objetivos a menudo es limitada. El alcance de los ESOP es, sin duda, más amplio e incluye un número considerable o la mayoría de los empleados, aparte de los ejecutivos. El número de expertos comprometidos con el valor firme aumenta considerablemente y la dificultad que tienen los ejecutivos para ocultar las malas noticias de una empresa es significativamente mayor después de la adopción de un ESOP. En segundo lugar, los ejecutivos pueden

ejercer sus opciones en cualquier momento después de la fecha de ejercicio en incentivos de capital ejecutivo en forma de opciones de acciones; por lo tanto, sólo tienen que prestar atención al precio de las acciones cuando ejercen sus opciones. Sin embargo, la venta de acciones en el caso de un ESOP necesita el consentimiento unánime del comité de accionistas y debe cumplir con estrictas leyes y regulaciones. Es más complicado, difícil y requiere mucho tiempo. Por lo tanto, es probable que un ESOP contribuya más al valor a largo plazo de una empresa en lugar de aumentar el precio de las acciones a corto plazo ocultando malas noticias. Por último, pero no menos importante, los incentivos a la propiedad de acciones a menudo se ofrecen a los ejecutivos libremente o a un precio muy bajo, lo que significa dinero sobre la mesa para los ejecutivos. Los ejecutivos se benefician a medida que aumenta el precio de las acciones y no sufren pérdidas cuando los precios bajan. Sin embargo, la participación en esops no es gratuita. Los empleados deben pagar por esops de acuerdo con (en el caso de compra en el mercado secundario) o en referencia (en el caso de la colocación privada) el precio de mercado, incluso necesitando asumir pasivos adicionales en el caso de esops apalancados. Si los precios de las acciones caen por debajo del precio de compra de ESOP, los participantes sufrirán pérdidas adicionales, e incluso se declararán en bancarrota debido al cierre del margen en el caso de esops apalancados. Por lo tanto, en comparación con los incentivos de equidad ejecutiva, los participantes de LA ESOP pueden ser más conservadores y menos propensos a aumentar los precios de las acciones a través de comportamientos de riesgo a corto plazo que aumentan el riesgo de accidentes futuros. Por estas razones, asumimos que los ESOP pueden reducir el riesgo de desplome de los precios de las acciones en lugar de aumentarlo como lo hacen los incentivos de equidad ejecutiva.

Para examinar la influencia real de los ESOP en el riesgo de caída de los precios de las acciones, realizamos pruebas empíricas utilizando empresas chinas cotizadas que adoptaron ESOP de 2014 a 2017. Los resultados empíricos muestran que el anuncio de un ESOP disminuye significativamente el riesgo futuro de desplome del precio de las acciones de una empresa. El mecanismo por el cual los ESOP afectan al riesgo de choque es principalmente a través de efectos de señalización, a saber, esops transmiten señales positivas al mercado de que los expertos son optimistas sobre el valor futuro de la empresa, lo que ayuda a generar la confianza de los inversores en la empresa, mitiga la caída del precio de las acciones o una venta de fuego en las acciones si hay malas noticias, y por lo tanto reduce el riesgo de caída de las acciones. Las señales positivas que esops transmiten a los mercados de capitales también incluyen la probabilidad de que los empleados que participan en ESOP estén más motivados para exponer las malas noticias de las empresas, especialmente cuando sus acciones están dentro de un período de encierro. Este hallazgo es coherente con investigaciones anteriores, que se centran principalmente en el efecto de anuncio de los ESOP. Beatty (1995) muestra que los anuncios de ESOP pueden proporcionar a los inversores señales sobre la evasión fiscal de las empresas y los comportamientos anti-adquisición. (1996) investigan el rendimiento financiero y la reacción del mercado de los anuncios de ESOP. Encuentran que un anuncio DE ESOP es una buena señal para comprar acciones de una empresa. (2017) examinan el rendimiento de los precios bursátiles de las empresas ESOP durante la crisis económica y la recuperación y descubren que los ESOP predicen una menor caída de la capitalización de mercado durante una crisis y un mayor aumento de la capitalización de mercado al final de la crisis. Los accionistas externos prestan mucha atención a las señales de información generadas por las acciones de gestión [esops y Ofertas de Capital Experimentado (seos)] que indican resiliencia durante una crisis económica.

Este documento también constata que el impacto de los ESOP en el riesgo de caída del precio de las acciones depende de las características de los ESOP. En particular, el vínculo entre los ESOP y el riesgo de caída de los precios de las acciones es más pronunciado en esop a gran escala, lo que es coherente con los resultados sobre el efecto de señalización de los ESOP, ya que los ESOP a mayor escala transmiten señales más sólidas sobre las opiniones optimistas de los empleados sobre el valor futuro de las empresas. Esops con altos precios o apalancamiento financiero no reducen el riesgo de caída y a veces incluso elevarlo, lo que es inconsistente con el efecto de señalización. Sin embargo, estos resultados inconsistentes no significan que el efecto de señalización sea ineficaz, sino que indican señales especiales sobre la presión de liquidación en un entorno de mercado duro, que compensa las señales positivas enviadas por el ESOP. Nuestros resultados son robustos para diversos análisis de sensibilidad.

Nuestro estudio hace varias contribuciones. En primer lugar, este estudio contribuye a la literatura sobre el impacto de los ESOP. Este documento es el primero hasta ahora que prueba directamente la influencia de los ESOP en la estabilidad de los mercados de capitales desde la perspectiva del riesgo de caída de los precios de las acciones, mientras que las investigaciones previas se centraron principalmente en las actitudes de los empleados, el rendimiento de las empresas, las reacciones del mercado y los rendimientos anormales. Nuestro estudio enriquece las perspectivas sobre la influencia de LA ESOP y es un complemento necesario para la literatura existente.

En segundo lugar, nuestro estudio amplía la literatura sobre los factores de influencia del riesgo de desplome del precio de las acciones. La literatura existente sobre los factores que afectan al riesgo de caída de los precios de las acciones tiene en cuenta principalmente la ocultación y la divulgación concentrada de malas noticias, mientras que este documento incluye esops en el marco de estudio del riesgo de caída del precio de las acciones, y examina los factores que influyen en el riesgo de caída del precio de las acciones desde las perspectivas del envío de señales de información privilegiada y los comportamientos de los inversores, lo que es una extensión importante de la literatura existente.

Por último, este documento utiliza un período específico, a saber, "el desplome del mercado de valores en 2015" para examinar el impacto de los ESOP en el riesgo de accidentes. Es un complemento beneficioso para los estudios específicos y situados sobre esop, y también arroja luz sobre el establecimiento y la mejora de las leyes y reglamentos pertinentes a las autoridades reguladoras.

El resto de este documento se organiza de la siguiente manera. Los antecedentes institucionales introducen la historia y los antecedentes básicos de los ESOP en China. Revisión de la literatura y la sección de desarrollo de hipótesis presenta la revisión de la literatura y hipótesis teóricas. La sección de diseño de investigación describe el diseño del estudio. En la sección de resultados empíricos, se presentan el análisis y la explicación de los resultados empíricos. Concluye la sección de conclusión.

## CONCLUSIÓN

Como una importante iniciativa para profundizar integralmente la reforma y promover el desarrollo saludable de los mercados de capitales de China, los ESOP han recibido una amplia atención del gobierno, las empresas cotizadas y los inversores desde que se propusieron por primera vez. Vale la pena examinar la influencia de los ESOP en los mercados de capitales en los campos de la teoría y la práctica. Para comprender mejor el impacto de los ESOP en China, realizamos pruebas empíricas utilizando esop anunciado por las empresas cotizadas en los mercados de A-share durante el período 2014-2017 y sus muestras coincidentes utilizando un enfoque PSM.

Los resultados muestran que la adopción de esops puede reducir el riesgo futuro de accidentes principalmente a través de efectos de señalización: esops transmite señales positivas a los mercados de capitales de que los expertos son optimistas sobre el valor futuro de las empresas, lo que ayuda a mejorar la confianza de los inversores, reducir la influencia negativa de la mala información sobre el precio de las acciones y, por lo tanto, reducir el riesgo de caída de los precios de las acciones. Por último, encontramos que la heterogeneidad ESOP es de gran importancia para la influencia de LOSOS en el riesgo de caída del precio de las acciones. Los ESOP de mayor escala, de menor precio y no apalancados son más propensos a reducir las fluctuaciones anormales de los precios de las acciones y disminuir el riesgo de desplome, mientras que los ESOP de mayor precio y apalancados solo tienen un efecto limitado en la reducción del riesgo de choque y, a veces, incluso pueden aumentar el riesgo.

## **TRANSLATED VERSION: FRENCH**

Below is a rough translation of the insights presented above. This was done to give a general understanding of the ideas presented in the paper. Please excuse any grammatical mistakes and do not hold the original authors responsible for these mistakes.

## **VERSION TRADUITE: FRANÇAIS**

Voici une traduction approximative des idées présentées ci-dessus. Cela a été fait pour donner une compréhension générale des idées présentées dans le document. Veuillez excuser toutes les erreurs grammaticales et ne pas tenir les auteurs originaux responsables de ces erreurs.

## **INTRODUCTION**

Le 20 juin 2014, la China Securities Regulatory Commission (CSRC) a publié le 20 juin 2014 les « avis directeurs sur le programme pilote de mise en œuvre des plans d'actionnariat des employés par les sociétés cotées ». Les PES attirent de plus en plus l'attention et la reconnaissance des sociétés chinoises cotées. Au 31 décembre 2017, plus de 816 sociétés chinoises cotées en actions A avaient successivement mis en œuvre des PES et de nombreuses autres sociétés ont indiqué qu'elles avaient l'intention de mettre en œuvre des PES. Les PES sont-ils un moyen efficace de stabiliser le sentiment du marché et le cours des actions ou un accélérateur des fluctuations du marché et du krach? La réponse à cette question est importante pour les entreprises cotées et les régulateurs, en particulier en Chine où les PES sont encore relativement nouveaux et où les marchés boursiers sont encore sous-développés et souffrent souvent de fortes baisses systématiques.

Il y a des recherches considérables sur les PES et le risque d'effondrement du cours des actions, respectivement, dans la littérature existante. Toutefois, des recherches limitées ont été menées sur l'influence des PES sur le risque de krach boursier directement. La recherche la plus connexe peut être l'influence des incitations aux actions des dirigeants sur le risque d'effondrement du cours des actions. Ismail et coll. (2016) soutiennent que les cadres supérieurs sont plus susceptibles d'annoncer de bonnes nouvelles en temps opportun et de dissimuler de mauvaises nouvelles après l'adoption d'incitatifs à l'équité des cadres supérieurs. Kim et coll. (2011b) étudient la relation entre les incitations aux actions des dirigeants et le risque de krach boursier. Ils constatent que les incitations aux options des directeurs financiers augmentent le risque futur de krach boursier. Ces deux études indiquent que la relation entre les PES et le risque d'accident peut être positive.

Toutefois, bien qu'il existe certaines similitudes entre les PES et les incitations aux capitaux propres des dirigeants, l'influence des PES sur le risque de krach boursier peut être très différente de celle des incitations aux capitaux propres des dirigeants. Premièrement, comme les incitatifs à l'équité des cadres supérieurs ciblent les cadres supérieurs ou l'équipe de direction, l'éventail des cibles est souvent limité. La portée des PES est sans aucun doute plus large et comprend un nombre important ou la plupart des employés en dehors des cadres supérieurs. Le nombre d'initiés engagés dans la valeur de l'entreprise augmente considérablement et la difficulté des dirigeants à dissimuler les mauvaises nouvelles d'une entreprise est significativement plus élevée après l'adoption d'un PESE. Deuxièmement, les cadres supérieurs peuvent exercer leurs options à tout moment après la date d'exercice dans le cadre d'incitatifs à l'équité des cadres supérieurs sous forme d'options d'achat d'actions; par conséquent, ils n'ont qu'à prêter attention au cours de l'action quand ils exercent leurs options. Toutefois, la vente d'actions dans le cas d'un PESE nécessite le consentement unanime du comité d'actionnaires et doit se conformer à des lois et règlements stricts. C'est plus compliqué, plus difficile et plus long. Par conséquent, un PESE est susceptible de contribuer davantage à la valeur à long terme d'une entreprise au lieu d'augmenter le cours de l'action à court terme en dissimulant de mauvaises nouvelles. Last but not least, des incitations à la propriété des actions sont souvent offertes aux cadres librement ou à un prix très bas, c'est-à-dire de l'argent sur la table pour les cadres supérieurs. Les dirigeants en profitent à mesure que le cours de l'action augmente et ne subissent

aucune perte lorsque les prix baissent. Toutefois, la participation aux PES n'est pas gratuite. Les salariés doivent payer pour les PES en fonction (en cas d'achat sur le marché secondaire) ou en référence (dans le cas d'un placement privé) au prix du marché, même en ayant besoin d'assumer des engagements supplémentaires en cas d'esops à effet de levier. Si le cours de l'action tombe en dessous du prix d'achat esop, les participants subiront des pertes supplémentaires, et même feront faillite en raison de la clôture de la marge dans le cas des PES à effet de levier. Par conséquent, par rapport aux incitations à l'équité des dirigeants, les participants au PESE peuvent être plus prudents et moins susceptibles d'augmenter le cours des actions par le biais de comportements à court terme de prise de risque augmentant le risque d'accident futur. Pour ces raisons, nous supposons que les esops peuvent réduire le risque de krach boursier plutôt que de l'augmenter comme le font les incitations aux actions des dirigeants.

Afin d'examiner l'influence réelle des PES sur le risque de krach boursier, nous effectuons des tests empiriques à l'aide d'entreprises cotées chinoises qui ont adopté des PES de 2014 à 2017. Les résultats empiriques montrent que l'annonce d'un PESE diminue considérablement le risque futur de krach boursier d'une entreprise. Le mécanisme par lequel les PES affectent le risque d'accident est principalement par des effets de signalisation, à savoir, esops transmettent des signaux positifs au marché que les initiés sont optimistes quant à la valeur future de l'entreprise, ce qui contribue à renforcer la confiance des investisseurs dans l'entreprise, atténue la chute du cours des actions ou une vente d'urgence sur les actions s'il ya de mauvaises nouvelles, et réduit ainsi le risque de chute du cours de l'action. Les signaux positifs que les PES transmettent aux marchés financiers comprennent également la probabilité que les employés participant aux PES soient plus motivés à exposer les mauvaises nouvelles des entreprises, en particulier lorsque leurs actions sont dans une période de blocage. Cette constatation est conforme aux recherches antérieures, qui portent principalement sur l'effet d'annonce des PES. Beatty (1995) montre que les annonces esop peuvent fournir aux investisseurs des signaux sur l'évitement fiscal des entreprises et les comportements anti-prise de contrôle. Conte et coll. (1996) examinent le rendement financier et la réaction du marché des annonces esop. Ils trouvent qu'une annonce ESOP est un bon signal pour acheter les actions d'une entreprise. Banerjee et coll. (2017) examinent les performances boursières des entreprises esop pendant la crise économique et la reprise et constatent que les PES prévoient une baisse plus faible de la capitalisation boursière en période de crise et une augmentation plus importante de la capitalisation boursière à la fin de la crise. Les actionnaires externes prêtent une attention particulière aux signaux d'information générés par les actions managériales [esops et Placements d'actions chevronnées (seos)] qui indiquent la résilience en période de crise économique.

Ce document constate également que l'impact des PES sur le risque de krach boursier dépend des caractéristiques des PES. En particulier, le lien entre les PES et le risque de krach boursier est plus prononcé dans les PES à plus grande échelle, ce qui est conforme aux constatations sur l'effet de signalisation des PES, car les PES à plus grande échelle transmettent des signaux plus forts sur les points de vue optimistes des employés sur la valeur future des entreprises. Les PES avec des prix élevés ou un effet de levier financier ne réduisent pas le risque d'accident et parfois même l'augmentent, ce qui est incompatible avec l'effet de signalisation. Toutefois, ces résultats incohérents ne signifient pas que l'effet de signalisation est inefficace, mais indiquent des signaux spéciaux concernant la pression de liquidation dans un environnement de marché difficile, qui compensent les signaux positifs envoyés par les PES. Nos résultats sont robustes pour diverses analyses de sensibilité.

Notre étude apporte plusieurs contributions. Premièrement, cette étude contribue à la littérature sur l'impact des PES. Ce document est le premier à ce jour à tester directement l'influence des PES sur la stabilité des marchés financiers du point de vue du risque de krach boursier, tandis que des recherches antérieures ont porté principalement sur l'attitude des employés, la performance de l'entreprise, les réactions du marché et les rendements anormaux. Notre étude enrichit les perspectives sur l'influence esop et est un complément nécessaire à la littérature existante.

Deuxièmement, notre étude étend la littérature sur les facteurs d'influence du risque de krach boursier. La littérature existante sur les facteurs affectant le risque de krach boursier tient principalement compte de la dissimulation et des divulgations concentrées de mauvaises nouvelles, tandis que ce document inclut les PES dans le cadre d'étude du risque de krach boursier, et examine les facteurs influençant le risque de krach



boursier du point de vue de l'envoi de signaux d'initiés et des comportements des investisseurs, qui est une extension importante de la littérature existante.

Enfin, ce document utilise une période spécifique, à savoir « le krach boursier en 2015 » pour examiner l'impact des PES sur le risque d'accident. Il s'agit d'un complément bénéfique aux études spécifiques et localisées sur les PES, et il met également en lumière la poursuite de l'établissement et de l'amélioration des lois et règlements pertinents aux autorités réglementaires.

Le reste de ce document est organisé comme suit. Le contexte institutionnel introduit l'histoire et les antécédents fondamentaux des PES en Chine. L'examen de littérature et la section de développement d'hypothèses présente l'examen de littérature et les hypothèses théoriques. La section de conception de recherche décrit la conception de l'étude. Dans la section des résultats empiriques, l'analyse et l'explication des résultats empiriques sont présentées. Conclusion de la section conclut.

## **CONCLUSION**

En tant qu'initiative importante visant à approfondir globalement les réformes et à promouvoir le développement sain des marchés financiers chinois, les PESO ont reçu une attention considérable de la part du gouvernement, des sociétés cotées et des investisseurs depuis qu'ils ont été proposés pour la première fois. Il vaut la peine d'examiner l'influence des PES sur les marchés financiers dans les domaines de la théorie et de la pratique. Afin de mieux comprendre l'impact des PES en Chine, nous effectuons des tests empiriques à l'aide des PES annoncés par les entreprises cotées sur les marchés des actions A entre 2014 et 2017 et de leurs échantillons appariés à l'aide d'une approche psm.

Les résultats montrent que l'adoption d'esops peut réduire le risque futur de krach principalement par des effets de signalisation : les PES transmettent aux marchés financiers des signaux positifs indiquant que les initiés sont optimistes quant à la valeur future des entreprises, ce qui contribue à renforcer la confiance des investisseurs, à réduire l'influence négative des mauvaises informations sur le cours des actions et, partant, à réduire le risque de krach boursier. Enfin, nous constatons que l'hétérogénéité esop est d'une grande importance pour l'influence des PES sur le risque de krach boursier. Les PES À plus grande échelle, à bas prix et sans effet de levier sont plus susceptibles de réduire les fluctuations anormales du cours des actions et de réduire le risque d'accident, tandis que les PES À prix plus élevés et à effet de levier n'ont qu'un effet limité sur la réduction du risque d'accident et peuvent parfois même augmenter le risque.

## **TRANSLATED VERSION: GERMAN**

Below is a rough translation of the insights presented above. This was done to give a general understanding of the ideas presented in the paper. Please excuse any grammatical mistakes and do not hold the original authors responsible for these mistakes.

## **ÜBERSETZTE VERSION: DEUTSCH**

Hier ist eine ungefähre Übersetzung der oben vorgestellten Ideen. Dies wurde getan, um ein allgemeines Verständnis der in dem Dokument vorgestellten Ideen zu vermitteln. Bitte entschuldigen Sie alle grammatikalischen Fehler und machen Sie die ursprünglichen Autoren nicht für diese Fehler verantwortlich.

## **EINLEITUNG**

Die China Securities Regulatory Commission (CSRC) veröffentlichte am 20. Juni 2014 die "Guiding Opinions on the Pilot Program for the Implementation of the Employee Share Ownership Plans by Listed Companies" ("Stellungnahmen") ("Stellungnahmen") heraus. Esops werden von Chinas börsennotierten Unternehmen immer mehr Aufmerksamkeit und Anerkennung erhalten. Bis zum 31. Dezember 2017 hatten mehr als 816 börsennotierte chinesische A-Aktienunternehmen sukzessive esops implementiert, und viele

andere Unternehmen haben erklärt, dass sie esops einführen wollen. Sind esops ein wirksames Mittel zur Stabilisierung der Marktstimmung und der Aktienkurse oder ein Beschleuniger für Marktschwankungen und Crash? Die Antwort auf diese Frage ist wichtig für börsennotierte Unternehmen und Regulierungsbehörden, insbesondere in China, wo die esops noch relativ neu sind und die Aktienmärkte noch unterentwickelt sind und oft unter systematischen starken Abschwüngen leiden.

In der vorhandenen Literatur gibt es umfangreiche Untersuchungen zu esops und Börsencrash-Risiken. Allerdings wurden nur begrenzte Untersuchungen über den direkten Einfluss von esops auf das Risiko von Kurscrashes durchgeführt. Die am meisten verwandte Forschung kann der Einfluss von Executive Equity Incentives auf das Risiko eines Aktienkursabsturzes sein. Ismail et al. (2016) argumentieren, dass Führungskräfte eher rechtzeitig gute Nachrichten verkünden und schlechte Nachrichten nach der Annahme von Executive Equity Incentives verbergen. Kim et al. (2011b) untersuchen den Zusammenhang zwischen Executive Equity Incentives und dem Risiko eines Aktienkurscrashes. Sie stellen fest, dass CFO-Optionsanreize das zukünftige Kurssturzrisiko erhöhen. Diese beiden Studien deuten darauf hin, dass die Beziehung zwischen esops und Crashrisiko positiv sein kann.

Obwohl es einige Ähnlichkeiten zwischen esops und Executive Equity Incentives gibt, kann sich der Einfluss von esops auf das Risiko von Aktienkurscrashes stark von dem von Executive Equity Incentives unterscheiden. Erstens: Da sich die Anreize für Führungskräfte oder Führungskräfte an die Top-Führungskräfte oder das Führungsteam richten, ist die Palette der Ziele oft begrenzt. Der Umfang der esops ist zweifellos größer und umfasst neben Führungskräften eine beträchtliche Anzahl oder die meisten Mitarbeiter. Die Zahl der Insider, die sich dem Unternehmenswert verschrieben haben, steigt stark an, und die Schwierigkeiten, die Führungskräfte haben, die schlechten Nachrichten eines Unternehmens zu verschleiern, sind nach der Einführung eines ESOP deutlich höher. Zweitens können Führungskräfte ihre Optionen jederzeit nach dem Ausübungsdatum in Form von Aktienoptionen ausüben; daher müssen sie nur auf den Aktienkurs achten, wenn sie ihre Optionen ausüben. Der Verkauf von Aktien im Falle eines ESOP bedarf jedoch der einstimmigen Zustimmung des Aktionärsausschusses und muss strengen Gesetzen und Vorschriften entsprechen. Es ist komplizierter, schwieriger und zeitaufwändiger. Daher wird ein ESOP wahrscheinlich mehr zum langfristigen Wert eines Unternehmens beitragen, anstatt den kurzfristigen Aktienkurs zu erhöhen, indem es schlechte Nachrichten verheimlicht. Nicht zuletzt werden Aktieneigentumsanreize für Führungskräfte oft frei oder zu einem sehr niedrigen Preis angeboten, was Geld für Führungskräfte bedeutet. Führungskräfte profitieren von aktienkursen Anstiegen und erleiden keine Verluste, wenn die Preise fallen. Die Teilnahme an esops ist jedoch nicht kostenlos. Die Arbeitnehmer müssen für esops gemäß (im Falle des Erwerbs vom Sekundärmarkt) oder in Bezug auf (im Falle der Privatplatzierung) des Marktpreises bezahlen, wobei sie sogar zusätzliche Verbindlichkeiten im Falle von fremdfinanzierten esops übernehmen müssen. Wenn die Aktienkurse unter den ESOP-Kaufpreis fallen, werden die Teilnehmer zusätzliche Verluste erleiden und sogar aufgrund von Margin-Schließungen im Falle von gehebelten esops in Konkurs gehen. Daher könnten es die ESOP-Teilnehmer im Vergleich zu den Anreizen für Führungskräfte konservativer sein, die Aktienkurse durch kurzfristigerisikobehaftete Verhaltensweisen zu erhöhen, die das zukünftige Crashrisiko erhöhen. Aus diesen Gründen gehen wir davon aus, dass esops das Risiko eines Aktienkursabsturzes eher verringern als erhöhen können, wie es die Eigenkapitalanreize der Exekutive tun.

Um den tatsächlichen Einfluss von esops auf das Risiko von Aktienkurscrashes zu untersuchen, führen wir empirische Tests mit chinesischen börsennotierten Unternehmen durch, die esops von 2014 bis 2017 übernommen haben. Empirische Ergebnisse zeigen, dass die Ankündigung eines ESOP das zukünftige Kurssturzrisiko eines Unternehmens deutlich verringert. Der Mechanismus, mit dem esops das Crashrisiko beeinflussen, besteht hauptsächlich in Signaleffekten, nämlich dass esops dem Markt positive Signale vermitteln, dass Insider hinsichtlich des zukünftigen Wertes des Unternehmens optimistisch sind, was dazu beiträgt, das Vertrauen der Anleger in das Unternehmen zu stärken, den Kursverfall oder einen Feuerverkauf auf Aktien bei schlechten Nachrichten verringert und damit das Risiko eines Börsencrashes verringert. Zu den positiven Signalen, die esops an die Kapitalmärkte übermitteln, gehört auch die Wahrscheinlichkeit, dass Mitarbeiter, die an esops teilnehmen, motivierter sind, die schlechten Nachrichten der Unternehmen offenzulegen, insbesondere wenn ihre Aktien innerhalb einer Sperrfrist liegen. Diese

Feststellung steht im Einklang mit früheren Forschungsergebnissen, die sich hauptsächlich auf den Ankündigungseffekt der esops konzentrieren. Beatty (1995) zeigt, dass ESOP-Ankündigungen Investoren Signale über Steuervermeidung und Anti-Übernahme-Verhalten von Unternehmen liefern können. Conte et al. (1996) untersuchen die finanzielle Rendite und Marktreaktion von ESOP-Ankündigungen. Sie finden, dass eine ESOP-Ankündigung ein gutes Signal ist, um die Aktien eines Unternehmens zu kaufen. Banerjee et al. (2017) untersuchen die Aktienkursentwicklung von ESOP-Unternehmen während der Wirtschaftskrise und Erholung und stellen fest, dass Die esops einen geringeren Rückgang der Marktkapitalisierung während einer Krise und einen stärkeren Anstieg der Marktkapitalisierung am Ende der Krise vorhersagen. Externe Aktionäre achten genau auf Informationssignale, die durch Management-Aktionen [esops und Seasoned Equity Offerings (seos)] erzeugt werden, die auf Widerstandsfähigkeit während einer Wirtschaftskrise hinweisen.

In diesem Papier wird auch darauf verstellt, dass die Auswirkungen von esops auf das Risiko eines Börsencrashes von den Merkmalen der esops abhängen. Insbesondere ist der Zusammenhang zwischen esops und Demontozos-Absturzrisiko in größeren esops stärker ausgeprägt, was mit den Erkenntnissen über die Signalwirkung von esops übereinstimmt, da größere esops stärkere Signale über die optimistischen Ansichten der Arbeitnehmer über den zukünftigen Wert der Unternehmen vermitteln. Esops mit hohen Preisen oder finanzieller Hebelwirkung verringern das Crashrisiko nicht und erhöhen es manchmal sogar, was mit dem Signaleffekt unvereinbar ist. Diese inkonsistenten Ergebnisse bedeuten jedoch nicht, dass der Signaleffekt ineffektiv ist, sondern deuten auf spezielle Signale über den Liquidationsdruck in einem rauen Marktumfeld hin, die die positiven Signale der esops ausgleichen. Unsere Ergebnisse sind robust für verschiedene Sensitivitätsanalysen.

Unsere Studie leistet mehrere Beiträge. Erstens trägt diese Studie zur Literatur über die Auswirkungen von esops bei. Dieses Papier ist das erste, das bisher direkt den Einfluss von esops auf die Stabilität der Kapitalmärkte aus der Perspektive des Risikos eines Aktienpreiscrashes testet, während sich frühere Untersuchungen hauptsächlich auf die Einstellung der Mitarbeiter, die feste Leistung, Marktreaktionen und ungewöhnliche Renditen konzentrierten. Unsere Studie bereichert die Perspektiven auf ESOP-Einfluss und ist eine notwendige Ergänzung der bestehenden Literatur.

Zweitens erweitert unsere Studie die Literatur zu den Einflussfaktoren des Aktienkurscrashrisikos. Vorhandene Literatur über Faktoren, die das Risiko des Aktienkurscrashes beeinflussen, berücksichtigt im Wesentlichen die Verschleierung und die geballte Offenlegung schlechter Nachrichten, während dieses Papier esops in den Studienrahmen des Aktienkurscrashrisikos einführt und die Einflussfaktoren des Aktienkurscrashrisikos aus der Perspektive von Insider signalen und anlegerverhalten untersucht, was eine wichtige Erweiterung der bestehenden Literatur darstellt.

Schließlich verwendet dieses Papier einen bestimmten Zeitraum, nämlich den "Börsencrash 2015", um die Auswirkungen von esops auf das Crashrisiko zu untersuchen. Es ist eine vorteilhafte Ergänzung zu spezifischen und ortsbestimmten Studien über esops und wirft auch Einhellungen auf die weitere Einrichtung und Verbesserung der einschlägigen Gesetze und Verordnungen für die Regulierungsbehörden.

Der Rest dieses Papiers ist wie folgt organisiert. Institutioneller Hintergrund stellt die Geschichte und den grundlegenden Hintergrund von esops in China vor. Literaturrezension und Hypothesen Entwicklung Abschnitt präsentiert die Literatur-Review und theoretische Hypothesen. Der Abschnitt Forschungsdesign beschreibt das Studiendesign. Im Abschnitt empirische Ergebnisse werden Analysen und Erläuterungen empirischer Ergebnisse dargestellt. Schlussfolgerungsabschnitt schließt.

## **SCHLUSSFOLGERUNG**

Als wichtige Initiative zur umfassenden Vertiefung der Reformen und zur Förderung einer gesunden Entwicklung der chinesischen Kapitalmärkte haben die esops seit ihrer ersten Vorgeschlagene umfassende Aufmerksamkeit von der Regierung, börsennotierten Unternehmen und Investoren erhalten. Es lohnt sich, den Einfluss von esops auf die Kapitalmärkte sowohl in der Theorie als auch in der Praxis zu untersuchen. Um die Auswirkungen von esops in China besser zu verstehen, führen wir empirische Tests mit den

angekündigten esops börsennotierter Unternehmen in den A-Aktienmärkten im Zeitraum 2014 bis 2017 und deren abgeglichenen Stichproben nach einem PSM-Ansatz durch.

Die Ergebnisse zeigen, dass die Einführung von esops das zukünftige Crashrisiko vor allem durch Signaleffekte verringern kann: esops senden positive Signale an die Kapitalmärkte, dass Insider optimistisch sind, was das Vertrauen der Investoren stärkt, den negativen Einfluss schlechter Informationen auf den Aktienkurs verringert und damit das Risiko eines Aktienkurscrashs verringert. Schließlich stellen wir fest, dass die ESOP-Heterogenität für den Einfluss von esops auf das Risiko von Börsencrashes von großer Bedeutung ist. Größere, günstigere und nicht fremdfinanzierte esops verringern eher anormale Aktienkursschwankungen und verringern das Crashrisiko, während höherpreisige und fremdfinanzierte esops nur einen begrenzten Einfluss auf die Verringerung des Crashrisikos haben und manchmal sogar das Risiko erhöhen können.

## **TRANSLATED VERSION: PORTUGUESE**

Below is a rough translation of the insights presented above. This was done to give a general understanding of the ideas presented in the paper. Please excuse any grammatical mistakes and do not hold the original authors responsible for these mistakes.

## **VERSÃO TRADUZIDA: PORTUGUÊS**

Aqui está uma tradução aproximada das ideias acima apresentadas. Isto foi feito para dar uma compreensão geral das ideias apresentadas no documento. Por favor, desculpe todos os erros gramaticais e não responsabilize os autores originais responsáveis por estes erros.

## **INTRODUÇÃO**

A Comissão Reguladora dos Valores Mobiliários da China (CSRC) emitiu o "Conselho de Opiniões Orientantes sobre o Programa Piloto para a Implementação dos Planos de Propriedade de Ações dos Trabalhadores por Empresas Cotadas" ("Opiniões") em 20 de junho de 2014. Os esops têm vindo a atrair cada vez mais atenção e reconhecimento por parte das empresas cotadas na China. Até 31 de dezembro de 2017, mais de 816 empresas cotadas em ações chinesas tinham implementado sucessivamente esops e muitas outras empresas indicaram que pretendem implementar esops. Os esops são um meio eficaz para estabilizar o sentimento do mercado e os preços das ações ou um acelerador para as flutuações do mercado e para a queda? A resposta a esta questão é importante para as empresas e os reguladores cotados, especialmente na China, onde os esops ainda são relativamente novos e os mercados bolsistas continuam subdesenvolvidos e sofrem frequentemente de recessões severas sistemáticas.

Existem estudos consideráveis sobre os esops e o risco de quebra dos preços das existências, respectivamente, na literatura existente. No entanto, foram realizados estudos limitados sobre a influência dos esops no risco de queda dos preços das ações diretamente. A investigação mais relacionada pode ser a influência de incentivos de capital executivo no risco de quebra de preços das ações. Ismail et al. (2016) argumentam que os executivos são mais propensos a anunciar boas notícias em tempo útil e esconder más notícias após a adoção de incentivos de capital executivo. Kim et al. (2011b) estuda a relação entre os incentivos à equidade executiva e o risco de quebra de preços das ações. Consideram que os incentivos à opção CFO aumentam o risco futuro de quebra dos preços das ações. Estes dois estudos indicam que a relação entre os esops e o risco de colisão pode ser positiva.

No entanto, embora existam algumas semelhanças entre os esops e os incentivos à equidade executiva, a influência dos esops no risco de quebra dos preços das ações pode ser muito diferente da dos incentivos à equidade executiva. Em primeiro lugar, como os incentivos à equidade executiva visam os executivos de topo ou a equipa executiva, o leque de metas é muitas vezes limitado. O âmbito de aplicação dos esops é, sem dúvida, mais vasto e inclui um número substancial ou a maioria dos colaboradores, além dos executivos. O número de informadores empenhados em valorizar consideravelmente e a dificuldade que os

executivos têm em ocultar as más notícias de uma empresa é significativamente maior após a adoção de um ESOP. Em segundo lugar, os executivos podem exercer as suas opções a qualquer momento após a data de exercício em incentivos à equidade executiva sob a forma de opções de ações; por conseguinte, só precisam de prestar atenção ao preço das ações quando exercem as suas opções. No entanto, a venda de ações no caso de um ESOP necessita do consentimento unânime da comissão de acionistas e deve respeitar leis e regulamentos rigorosos. É mais complicado, difícil e demorado. Por conseguinte, é provável que um ESOP contribua mais para o valor a longo prazo de uma empresa em vez de aumentar o preço das ações a curto prazo, ocultando más notícias. Por último, mas não menos importante, os incentivos à propriedade das ações são muitas vezes oferecidos aos executivos livremente ou a um preço muito baixo, o que significa dinheiro em cima da mesa para executivos. Os executivos beneficiam com o aumento do preço das ações e não sofrem perdas quando os preços descem. No entanto, a participação nos esops não é gratuita. Os trabalhadores têm de pagar os esops de acordo com (no caso de compra no mercado secundário) ou em referência ao preço de mercado (no caso de colocação privada), mesmo precisando de assumir responsabilidades adicionais no caso de esops alavancados. Se os preços das ações descerem abaixo do preço de compra do ESOP, os participantes sofrerão perdas adicionais e até irão à falência devido ao encerramento da margem no caso de esops alavancados. Por conseguinte, em comparação com os incentivos à equidade executiva, os participantes da ESOP podem ser mais conservadores e menos propensos a aumentar os preços das ações através de comportamentos de risco de curto prazo que aumentam o risco de colisão futura. Por estas razões, assumimos que os esops podem reduzir o risco de quebra de preços das ações em vez de aumentá-lo como os incentivos à equidade executiva.

Para examinar a influência real dos esops no risco de quebra de preços das ações, realizamos testes empíricos utilizando empresas cotadas chinesas que adotaram esops de 2014 a 2017. Os resultados empíricos mostram que o anúncio de um ESOP diminui significativamente o risco futuro de queda dos preços das ações de uma empresa. O mecanismo pelo qual os esops afetam o risco de colisão deve-se principalmente aos efeitos de sinalização, nomeadamente, os esops transmitem sinais positivos ao mercado de que os insiders estão otimistas quanto ao valor futuro da empresa, o que ajuda a aumentar a confiança dos investidores na empresa, atenua a queda do preço das ações ou a venda de fogo em ações se houver más notícias, reduzindo assim o risco de queda dos preços das ações. Os sinais positivos que os esops transmitem aos mercados de capitais incluem também a probabilidade de os trabalhadores que participam nos esops estarem mais motivados para expor as más notícias das empresas, especialmente quando as suas ações estão dentro de um período de bloqueio. Esta constatação é consistente com pesquisas anteriores, que se centram principalmente no efeito de anúncio dos esops. Beatty (1995) mostra que os anúncios da ESOP podem fornecer aos investidores sinais sobre a evasão fiscal das empresas e comportamentos anti-aquisição. Conte et al. (1996) investigam o retorno financeiro e a reação do mercado dos anúncios da ESOP. Eles acham que um anúncio da ESOP é um bom sinal para comprar as ações de uma empresa. Banerjee et al. (2017) analisam o desempenho dos preços das ações das empresas ESOP durante a crise e recuperação económica e constataam que os esops prevêm uma redução da capitalização de mercado durante uma crise e um maior aumento da capitalização de mercado no final da crise. Os acionistas externos prestam muita atenção aos sinais de informação gerados por ações de gestão [esops e Ofertas de Capitais Próprios Experientes (OE)] que indicam resiliência durante uma crise económica.

Este documento conclui igualmente que o impacto dos esops no risco de quebra dos preços das ações depende das características dos esops. Em especial, a ligação entre os esops e o risco de quebra dos preços das existências é mais acentuada em esops de maior escala, o que é consistente com as conclusões sobre o efeito de sinalização dos esops, uma vez que os esops de maior escala transmitem sinais mais fortes sobre as opiniões otimistas dos trabalhadores sobre o valor futuro das empresas. Os esops com preços elevados ou uma alavancagem financeira não reduzem o risco de colisão e, por vezes, até o aumentam, o que é inconsistente com o efeito de sinalização. No entanto, estes resultados inconsistentes não significam que o efeito de sinalização seja ineficaz, mas indicam sinais especiais sobre a pressão de liquidação num ambiente de mercado rigoroso, o que compensa os sinais positivos enviados pelos esops. Os nossos resultados são robustos para várias análises de sensibilidade.

O nosso estudo faz várias contribuições. Em primeiro lugar, este estudo contribui para a literatura sobre o impacto dos esops. Este artigo é o primeiro até agora a testar diretamente a influência dos esops na estabilidade dos mercados de capitais na perspectiva do risco de queda dos preços das ações, enquanto as investigações anteriores se concentraram principalmente nas atitudes dos trabalhadores, no desempenho firme, nas reações do mercado e nos rendimentos anormais. O nosso estudo enriquece as perspectivas sobre a influência da ESOP e é um suplemento necessário à literatura existente.

Em segundo lugar, o nosso estudo alarga a literatura sobre os fatores de influência do risco de queda dos preços das ações. A literatura existente sobre os fatores que afetam o risco de queda dos preços das ações tem principalmente em conta a ocultação e a divulgação concentrada de más notícias, enquanto este artigo inclui esops no quadro de estudo do risco de queda dos preços das ações, e examina os fatores influenciadores do risco de queda dos preços das ações a partir das perspectivas dos sinais de insiders que enviam e dos comportamentos dos investidores, o que constitui uma importante extensão da literatura existente.

Por último, este documento utiliza um período específico, nomeadamente "a quebra da bolsa em 2015" para analisar o impacto dos esops no risco de colisão. Trata-se de um complemento benéfico para estudos específicos e situados sobre os esops, e também esclarece o estabelecimento e a melhoria das leis e regulamentos pertinentes às autoridades reguladoras.

O resto deste trabalho é organizado da seguinte forma. O contexto institucional introduz a história e o fundo básico dos esops na China. Revisão de literatura e seção de desenvolvimento de hipóteses apresenta a revisão da literatura e hipóteses teóricas. A seção de design de pesquisa descreve o design do estudo. Na seção de resultados empíricos, são apresentadas análises e explicações sobre os resultados empíricos. A seção de conclusão termina.

## **CONCLUSÃO**

Como uma importante iniciativa para aprofundar globalmente as reformas e promover o desenvolvimento saudável dos mercados de capitais da China, os esops têm recebido uma atenção alargada por parte do governo, das empresas cotadas e dos investidores desde que foram propostos pela primeira vez. Vale a pena examinar a influência dos esops nos mercados de capitais nos domínios da teoria e da prática. Para melhor compreender o impacto dos esops na China, realizamos testes empíricos utilizando os anunciados esops das empresas cotadas nos mercados de ações A durante o período de 2014 a 2017 e as suas amostras combinadas utilizando uma abordagem psm.

As conclusões mostram que a adoção de esops pode reduzir o risco de colisão futura principalmente através de efeitos de sinalização: os esops transmitem sinais positivos aos mercados de capitais de que os insiders estão otimistas quanto ao valor futuro das empresas, o que ajuda a aumentar a confiança dos investidores, a reduzir a influência negativa das más informações sobre o preço das ações e, assim, a reduzir o risco de queda dos preços das ações. Por último, constatamos que a heterogeneidade da ESOP é de grande importância para a influência dos esops no risco de quebra dos preços das ações. Os esops de maior escala, a preços mais baixos e os esops não alavancados são mais propensos a reduzir as flutuações anormais dos preços das existências e a diminuir o risco de colisão, enquanto os esops mais caros e alavancados apenas têm um efeito limitado na redução do risco de colisão e, por vezes, podem até aumentar o risco.