

10. S. E. Kilic. Preservation plan applications for the historical city centre, Kemeralti (Izmir, Turkey), *European Planning Studies*, 2008, 16(2), pp.253-276.
11. J. Pallant. *SPSS Survival Manual: a step by step guide to data analysis using IBM SPSS*, Open University Press, 2013, 368 p.
12. A. Ghosh, S. L. McLafferty. *Location Strategies for Retail and Service Firms*, Rowman & Littlefield, 1987, 224 p.
13. Je'ro^me Baray, Ge'rad Cliquet. Delineating store trade areas through morphological analysis, *European Journal of Operational Research*, 2007, 182, pp.886–898.
14. A. Getis. The determination of the location of retail activities with the use of a map transformation, *Economic Geography*, 1963, 3(1), pp.14–22.
15. W. J. Reilly. *The Law of Retail Gravitation*, W.J. Reilly, 1931, 75 p.
16. D. L. Huff, R. R. Batsell. Delimiting the areal extent of a market area, *Journal of Marketing Research*, 1977, 14(4), pp.581–585.
17. M. Nakanishi, L. G. Cooper. Parameter estimation for a multiplicative competitive interaction model – least square approach, *Journal of Marketing Research*, 1974, 11 (3), pp.303–311.
18. J. A. Brunner, J. L. Mason. The influence of driving time upon shopping center preference, *Journal of Marketing*, 1968, 32 (2), pp.57–61.
19. W. Applebaum. *Methods for Determining Store Trade Areas, Market Penetration, and Potential Sales*, *Journal of Marketing Research*, 1966, 3(2), pp.127–141.
20. Wiki. <https://en.wikipedia.org/wiki/WeChat>, 2015.



## The Influence of Insider Law on preventing insider information leakage

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### Abstract

This paper analyzes the inhibition mechanism of the insider law based on the legislation and enforcement using the data of 50 countries (regions). Our findings indicate that legislation is a more important factor affecting insider information leakage. The perfection of legislation can give authority more power to improve the protection for investors. On the other hand, it can help establish a strict information disclosure system for the listing corporation and the intermediary organizations, in which way the leakage of insider information is prevented. In addition, some suggestions about regulatory policies and legal provisions in stock market are made in this paper.

Keywords: LEGAL SYSTEM, LEGISLATION, EXECUTION, INSIDER INFORMATION LEAKAGE.

## 1. Introduction

The leakage of insider information is an action that the actor leaks out the insider information to the person who has no access to. Because the insider information leakage has a very close contact to insider trading, the understanding about insider trading is also adaptive to the disclosure of insider information. About how to prevent insider trading, some scholars said: "It is not enough to prevent insider trading only by the insider information keepers' moral self-discipline and public's social supervision. The legal measures are extremely needed to deter illegal actions." From the two aspects of legislation and law enforcement, this paper tries to figure out the mechanism that the legal regulation works on the prevention of the inside information. We will put forward some advice on how to improve the legal regulation on the insider information, especially in China.

## 2. Literature Review

There are rare relative researches on how legal system affects insider information disclosure at home and abroad. But many scholars studied the relationship between legal system and insider trading. Laws prohibiting insider trading should be viable, necessary, or compatible with the rule of law[1]. The following part will respectively comb the corresponding mechanism from two perspectives of legislation and execution.

### 2.1. Preventing insider information leakage through legislation

This part includes three factors. First is the strictness of the law. Insider trading gains are inversely proportional to the severity degree of insider trading regulation and tougher rather than weaker regulation is preferred by investors[2]. Second is the comprehensiveness of the law. As insider information leakage is often concealed in other securities market irregularities, the legislation should cover many aspects. Perfect investor-protection law could inhibit unfair market behavior caused by information asymmetry[3]. Third is the availability of the law. Even the law was strict, bad executive performance will also make insider information leakage [4].

### 2.2. Preventing insider information leakage through execution

This part includes two factors. First is the discover ability of illegal acts. Regulatory system in developing countries was usually too incompetent on the detection of suspected crime[5]. Second is anti-interference ability (Independence). LLSV put the appointment, tenure, focus on research the effect of public enforcement of law on the development of the securities market[6].

## 2.3. Conclusions

Although domestic and foreign scholars have a lot of relative work, systematic study of the relations between law and insider information disclosure is still not enough. In addition, those researchers failed to address a conclusion on the mechanism of the law's inhibition of the disclosure of insider information and other irregularities. This paper tries to answer it and provide useful advice on regulatory policies and legal provisions.

## 3. Index system

### 3.1. Relevant indicators of legal system

First is Legislation. It includes two indices. (A) The power of the securities market supervisor granted by law – Public Enforcement. According to LLSV's index settings, we mainly focus on four aspects: Rule-making power, Investigative power, Order power, Crimination power. We score them using the same method as LLSV.(B) The disclosure requirements and Liability standard to market participants – Private Enforcement. In securities laws, the idea of Private Enforcement is mainly reflected in the disclosure requirements and the definition of the responsibility. (a)Disclosure requirements. The disclosure requirements include six parts: Prospectus, Compensation, Shareholders, Inside ownership, Irregular contracts, Transactions[7]. (b)Liability standard. The disclosure requirements are the comprehensive score of the issuer and its directors, distributors, accountants separately[8].

Second is Executive(law enforcement). It includes three indices. (A) Characteristics of regulatory agencies. We use the LLSV's description of the characteristics of securities market supervision, take appointment, tenure, focus as the evaluation index[9]. (B) Enforcement ability of laws. This paper will select the time difference between the establishment and application of the law to measure the efficiency. (C) Legal circumstances. We examine the law and order, the degree of corruption, and the bureaucratic level as three factors to measure a country's law enforcement environment.

### 3.2. Relevant indicators of insider information leakage

Taking into account that the international comparison data of insider information disclosure is difficult to obtain, insider information leakage is measured by the investors and the securities market.

First is Protection Index of small and medium investors. We use the protection of small and medium investors as a reflection of the insider information disclosure: the weaker the protection, the more serious the disclosure of insider information.

Second is Stock market development Index. (A) Relative size of the stock market -- Total market value of securities/GDP. This paper uses the total market value of securities /GDP to measure the relative size of the stock market, and describe the development of the securities market. If the violation of regulations could be prevented, the stock market would prosper. (B) Volatility of stock market -- Volatility of stock market. If leakage of inside information happens before announcement, the price would have been significantly changed. Then after the announcement, the stock price would not change much. (C) Liquidity of stock market-- Total value of stock trading/GDP. In a good market, investors can rapidly and effectively make trading decisions according to supply and demand, this also means that information asymmetry is not significant.

#### 4. The mechanism of legal system affecting insider information leakage

##### 4.1. Hypothesis

(1) More power the law gives the regulatory authority, less the leakage of insider information; (2) More strict the disclosure requirements, less the leakage of insider information; (3) Tougher enforcement of relevant agencies, less the leakage of insider information.

##### 4.2. Sample and data description

On the basis of LLSV's study of 49 countries (regions), we added China as the 50th country, We will take the above legislative and enforcement indicators as dependent variables, the index of insider information leakage as independent variables.

First is Index of legislation. We calculate China's score according to LLSV's index definition. Other countries' legislative level indicators have been given by LLSV's paper.

Second is Index of execution. (A) Characteristics of the Supervisor of securities markets. China, as the new object in 50 countries (regions), we calculate its score according to LLSV's index definition. (B) Enforcement ability of laws. The time of legislation and law enforcement practice in different countries[10]. According to the data in this paper, we divide all the countries into three groups: the country with no law of insider trading, the country with law but no execution, the country with law and execution. Legal promulgation and application time difference can reflect the country's law enforcement force, the smaller the time difference means the stronger the execution. We ranked the three groups of countries in accordance with the order of execution ability and convert the rank into scores 0-1. (C) Legal circumstances. Data came from the ICRG (Country Risk Guide Interna-

tional) database. We convert the original data into 0-1 points.

Third is Index of insider information leakage. We use the 2012 Protecting Minority Investors Index in business report from the World Bank to evaluate the protective effect of legal regulation. Relative size and liquidity of stock market comes from the WDI database. Volatility of stock market derives from wind information, according to the most representative stock market index in 2012.

Last is Control variable. The economic and social development is used as control variable. The status of economic development derived from ICRG(International Country Risk Guide)database.4.3 Empirical test and discussion

We separately investigate the specific impact from the aspect of legislation and enforcement through linear regression method. In the first step, we separately made the regression by the legislation and the law enforcement index, as shown in table 1. Although the results are not ideal owing to the defects of the data, the regression results verifies our hypothesis to a certain extent.

First is the impact from the power of the securities market supervisor granted by law. (1) It is positively related to the degree of investor protection, especially, investigative power and crimination power have a significant effect on the protection of small investors; (2) It is positively correlated with the relative size of the stock market, especially, order power and crimination power have a significant impact on the relative size of the stock market; (3) It is negatively related to the volatility of the stock market, especially, the rule-making power has a significant impact on the volatility of the stock market; (4) It is positively correlated with the liquidity of the stock market, especially, order power has a significant impact on the liquidity of the stock market.

Second is the impact from the disclosure requirements and Liability standard to market participants. (1) It is indistinctively but positively related to the degree of investor protection. Especially, the disclosure requirements has a significant impact on the protection of the small and medium-sized investment. (2) It also has a positive correlation to the relative size of the stock market, especially, the disclosure requirements has a significant impact on the relative size of stock market. (3) It is negatively related to the volatility of the stock market. Especially, the disclosure requirement has a significant impact on the volatility of the stock market. (4)It is positively correlated with the liquidity of stock market. Especially, the disclosure has a significant impact on the liquidity of the

**Table 1.** Regression Results of the relationship between Legal system and insider information leakage

	Protecting Minority Investors		Relative size of the stock market		Volatility of stock market		Liquidity of stock market	
<b>Legislation Level</b>								
1. The power of the securities market supervisor granted by law vs. insider information disclosure								
Rule-making power	(0.60)		2.53		(5.09)	-6.370 <sup>b</sup>	0.19	
	(-1.11)		(0.13)		(-1.34)	(-1.83)	(0.01)	
Investigative power	1.383 <sup>c</sup>	1.238 <sup>b</sup>	22.42		(4.28)		16.02	
	(1.85)	(2.13)	(0.80)		(-0.82)		(0.50)	
Order power	0.14		31.25	45.75 <sup>b</sup>	(1.32)		24.18	43.18 <sup>b</sup>
	(0.19)		(1.12)	(2.11)	(-0.25)		(0.75)	(1.80)
Crimination power	1.659 <sup>c</sup>	1.819 <sup>b</sup>	80.17 <sup>b</sup>	72.51 <sup>b</sup>	(4.58)		52.79	
	(1.76)	(2.12)	(2.27)	(2.17)	(-0.69)		(1.29)	
Economic and social development	0.1859 <sup>c</sup>	0.1827 <sup>b</sup>	5.15	4.976 <sup>b</sup>	(0.91)	(1.02)	5.77	6.37
	(2.00)	(1.99)	(1.48)	(1.45)	(-1.39)	(-1.61)	(1.43)	(1.63)
R <sup>2</sup> /Adjusted R <sup>2</sup>	0.26/0.18	0.24/0.19	0.29/0.21	0.28/0.23	0.15/0.06	0.11/0.08	0.16/0.06	0.13/0.09
2. The disclosure requirements and Liability standard to market participants vs. insider information disclosure								
Disclosure requirement	2.568 <sup>b</sup>	2.543 <sup>b</sup>	129.5a	159.6a	(11.07)	-13.41 <sup>b</sup>	103.90	118.9 <sup>b</sup>
	(2.25)	(2.62)	(3.32)	(4.78)	(-1.40)	(1.99)	(2.27)	(3.03)
Liability standard	(0.04)		36.47		(4.12)		26.37	
	(-0.04)		(1.05)		(-0.59)		(0.64)	
Economic and social development	0.171 <sup>b</sup>	0.171 <sup>b</sup>	4.55		(0.80)	(0.81)	5.07	5.14
	(1.82)	(1.84)	(1.42)		(-1.23)	(-1.26)	(1.35)	(1.37)
R <sup>2</sup> /Adjusted R <sup>2</sup>	0.21/0.16	0.21/0.18	0.37/0.32	0.32/0.31	0.13/0.08	0.13/0.09	0.23/0.18	0.22/0.19
<b>Enforcement Level</b>								
Characteristics of the Supervisor	(1.11)	(1.09)	(16.62)		6.28		4.84	
	(-1.24)	(-1.26)	(-0.48)		(1.03)		(0.13)	
Enforcement ability of laws	(0.20)		22.00		0.12		46.19	60.02 <sup>b</sup>
	(-0.27)		(0.74)		(0.02)		(1.48)	(2.21)
Legal circumstances	0.03		3.11		(0.08)		3.82	
	(0.08)		(0.22)		(-0.03)		(0.26)	
Control variable: Economic status	0.18	0.18	4.28		(0.82)		3.16	
	(1.08)	(0.08)	(0.65)		(-0.71)		(0.46)	
R <sup>2</sup> /Adjusted R <sup>2</sup>	0.13/0.05	0.13/0.09	0.1/0.02		0.07/0.0		0.11/0.03	0.09/0.07

Note 1: Each regression has two columns, the first column is the regression of all the independent variables and the second column is the regression of significant variables.

Note 2: <sup>a</sup>significant at 1%, <sup>b</sup> significant at 5%, <sup>c</sup> significant at 10%

stock market. Overall, the liability standard does not significantly affect the four outcome variables.

Third is the impact from the law enforcement. Overall, the regression results of law enforcement to the four outcome variables are poor (R<sup>2</sup> is small) and there is no significant effect. There could be two causes: one is the interference of the data defects in the characteristics of the supervisor and the enforcement ability of law. Different from the slow legislative progress, in the past decade, the enforcement ability might change a lot. As we still use the old data, the regression results might be affected. The second reason is that the law enforcement might not be the main factor of the impact on insider information leakage.

Next, we chose the above significant indicator in respective regression and made a comprehensive regression, as shown in table 2.

We found that when we use significant indicators, we got the ideal comprehensive regression results (R<sup>2</sup> is significantly improved). Overall, more power law gives supervisors, more stringent the disclosure requirements, stronger law enforcement ability of relevant agencies, brings less insider information disclosure. This is consistent to our expectations. Worthy to note is that when law enforcement agencies has obvious characteristics of government intervention, investor protection effect is better, which means government intervention has a certain role in safeguarding the interests of investors.

**Table 2.** Comprehensive regression results of the relationship between legal system and insider information leakage

	Protecting Minority Investors	Relative size of the stock market	Volatility of stock market	Liquidity of stock market
1.1. Rule-making power			-6.345 <sup>b</sup> (-1.87)	
1.2. Investigative power	1.512 <sup>b</sup> (2.62)			
1.3. Order power		25.29 (1.22)		
1.4. Crimination power	1.926 <sup>b</sup> (2.32)	57.37 <sup>b</sup> (1.87)		
2.1. Disclosure requirements		123.2 <sup>a</sup> (3.47)	-14.75 <sup>b</sup> (-2.27)	118.3 <sup>a</sup> (3.09)
2.2. Liability standard				
3.1. Characteristics of the Supervisor of securities markets	-1.681 <sup>b</sup> (-2.07)			
3.2. Enforcement ability of laws				48.27 <sup>b</sup> (1.91)
3.3. Legal circumstances				
Control variable: Economic and social development status	0.12 (1.33)			
R <sup>2</sup> /Adjusted R <sup>2</sup>	0.31/0.25	0.40/0.37	0.16/0.12	0.25/0.21

Note: <sup>a</sup>significant at 1%, <sup>b</sup>significant at 5%, <sup>c</sup>significant at 10%.

### 4.3. Robustness Test

In order to confirm our conclusion, guarantee the robustness, we divided 50 countries (regions) into two groups according to the types of countries (developing countries and developed countries). Same as the above comprehensive regression method, we respectively made regression of the two groups of countries. We find that the regression results are similar, the robustness test is passed.

### Conclusions

The law's inhibition mechanism on insider information leakage:

First is the legislative level. The perfection of legislation can help to improve the protection of small investors and establish a sound operation mechanism of the securities market. In this way, the leakage of information of the securities market reduces. Firstly, for the regulatory authority, more power the law gives the regulatory authority, less the leakage of insider information. Strengthening the rule-making and investigative power can effectively improve the protection of investors. Improving the rule-making power, investigative power, order power and crimination power is helpful to promote the healthy development of the stock market. Secondly, for the listing corporation and the intermediary organizations, the establishment of strict information disclosure system

can restrict the behavior of the listing corporation and the intermediary organizations, so as to protect the legitimate rights and interests of small investors, while ensuring the healthy and orderly development of the stock market.

Second is the enforcement level. In the case that the legislation has been determined, the improvement of the implementation ability of the law can promote the development of the securities market to a certain extent, but it is not the main factor affecting the disclosure of the information. We should notice that the government intervention brings better investor protection, from this point of view, government intervention played a positive role in curbing insider information leakage and other unfair acts.

Advices on improving insider law in China:

According to the evaluation indices in this paper, we find that legal system in China does not perform very well as the liability standard is high, crimination power is week, enforcement ability is poor and the legal environment is bad. Therefore, China needs to further promote the development of legislation and law enforcement to improve the supervision system.

First is to improve the legislation of security laws, especially the responsibility system. To improve the liability standard and crimination power, the legislation department should specify the illegal behav-

iors and punishment rules. In order to improve the enforcement of laws and regulations, the regulatory measures need to be innovated and expanded. As the contents of the investor protection are very few, China need to establish special investor protection laws and investor compensation system. In addition, China should also insure the timely and periodical revision of laws, making the laws adaptive to the experience and trend.

Second is to improve the enforcement of laws. The government needs to build a professional supervision team and ensure enough special funds. Officers in regulation agencies should be protected from attacks. Besides, an evaluation system about the working efficiency of regulators should be developed.

Third is to appropriately strengthen the government monitoring role in investor protection. China need to utilize the positive impact of government intervention on stock market. It can strengthen the market confidence by supporting investors to fight for the rights and interests. And China should also encourage the media and social forces to take part in supervision and reveal illegal cases. These methods can make up for the inadequacy of law.

### References

1. Taylor Smith, Walter E. Block. The Economics of Insider Trading: A Free Market Perspective[J]. Journal of Business Ethics, Published online, 2015, 3:1007-1055
2. VaheLskavyan. Insider regulation and the incentive to invest as an insider[J].Economics of Governance, 2015,14: 207-227.
3. Bhattacharya, U., H. Daouk. When no law is better than a good law[J]. Review of Finance, 2009, 13: 577-627.
4. Bart Frijns, Aaron Gilbert, AlirezaTourani-Rad. Do Criminal Sanctions Deter Insider Trading?[J]. Financial Review, 2013, 48: 205-232.
5. Budsaratagoon, P., Hillier, D., and Lhaopadchan, S., Applying developed-country regulation in emerging markets: an analysis of Thai insider trading[J]. Accounting & Finance, 2012, 52: 1013-1039.
6. La Porta, Rafael, Florencio Lopez-de-Silanes, Andrei Shleifer, What Works in Securities Laws? [J] Journal of Finance, 2006,61 :1-33.
7. La Porta, Rafael, Florencio Lopez-de-Silanes, Andrei Shleifer, and Robert Vishny. Law and Finance[J]. Journal of Political Economy, 1998, 106: 1113–1155.
8. La Porta, Rafael, Florencio Lopez-de-Silanes, Andrei Shleifer, and Robert Vishny, Investor protection and corporate valuation[J]. Journal of Finance, 2002, 57: 1147–1170.
9. La Porta, Rafael, Florencio Lopez-de-Silanes, Andrei Shleifer, What Works in Securities Laws? [J] Journal of Finance, 2006,61 :1-33.
10. Bris, Arturo. Do Insider Trading Laws Work? [J]. European Financial Management, 2005, 11: 267-312
11. P. Brockman, D. Y. Chung. Investor protection and firm liquidity[J]. Journal of Finance, 2003, 58: 921-937.

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