

Knowledge Atlas Analysis of China Due Diligence Research based on Citespace

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Abstract: This paper uses the bibliometric software Citespace 5.6.R5 to visually analyze the due diligence research literature in the CNKI database from 2000 to 2020, and presents the research hotspots and frontier trends in the due diligence research field in my country from a global perspective. The research found that: domestic due diligence has formed research hotspots such as credit business, intermediary agencies, corporate mergers and acquisitions, and anti-money laundering; legal due diligence of national policy “One Belt One Road” and foreign investment, financial due diligence of corporate mergers and venture capital, and establishment of intermediary agencies. The due diligence system has become the dynamic frontier of domestic due diligence research.

Keywords: due diligence; visual analysis; citespace

1. Introduction

In recent years, as China's economy has entered the “new normal” of structural transformation and downward adjustment, internet finance has been ups and downs and blockchain technology has been widely used, the capital market's new third board and science and technology innovation board have been continuously launched, market risks have continued to expand, and bank loans have been bad. The rate has risen sharply, many types of financial industries are showing huge losses and a large number of bankruptcies, corporate bad debts are rising rapidly, and the overall market credit is showing a serious downward trend. Therefore, whether it is due diligence of banks and various financial institutions on loan companies in the credit field, due diligence of downstream distributors and agents in the process of credit sales, or due diligence of corporate investment and mergers and acquisitions, all must be strictly conducted process management and code of conduct.

In recent years, along with the Chinese economy into the structure transformation and the downward adjustment of the “new normal”, internet financial ups and downs and widely used block chain technology, capital markets, the new three board and kechuang board constantly push the new, expanding market risk, a large rise in bank loans, many of the financial industry presents the huge losses and a large number of failures, enterprises rapidly rising bad loans [1], market overall credit in

serious decline. Therefore, both the due diligence of banks and various financial institutions on loan enterprises in the credit field, the due diligence of enterprises on downstream dealers and agents in the process of credit sales, and the due diligence of enterprises in investment and merger must be conducted in strict process management and code of conduct [2].

Based on the above background, this article intends to use CiteSpace software to conduct a multi-angle global analysis of the current status of the domestic due diligence research field from the perspective of dynamic tracking, reflect the current research status of the domestic due diligence field, and conduct hot topics and frontier trends in the due diligence research discuss, provide reference for due diligence research and subject development [3].

2. Research Objects and Methods

2.1. Research Objects

The data analyzed in this paper comes from the CNKI database, and the search is carried out with “discipline abstract=due diligence” as the search term. The data source category is “core journals, CSSCI source journals”, 2000-2020, and a total of 322 related documents were retrieved. In order to ensure the accuracy of the data, the retrieved Chinese literature data were checked item by item, and the non-academic literature, such as periodical, publishing, legal provisions interpretation, periodical contributions, related book publishing and conference news were excluded. Finally, 249 valid literature data were obtained. The data retrieval deadline is August 30, 2020.

2.2. Research Methods

The research and analysis in this paper use Citespace 5.6.R5 software, which was developed by Professor Chen Chaomei from the School of Computer and Information Science [4], Drexel University, USA. The design is mainly based on the JAVA language. At present, it is widely used in knowledge mapping analysis in more than 60 fields, such as natural science, engineering and technology science, computer science and so on. Based on CNKI's data retrieval results, this paper sets the time span to 2000-2020, selects 1 year for the time slice, selects the top 50 thresholds, the frequency of citations, the frequency of co-citations, and the co-citation

coefficient (c, cc, ccv) are set to 2, 2, and 20 respectively [5].

3. Analysis of Basic Characteristics of Domestic Due Diligence Research

3.1. Time Distribution Characteristics

The time distribution characteristics of the research literature can reflect the development trend and attention of the research field to a certain extent. Based on the literature data derived from the CNKI database, this paper draws a distribution map of the number of publications for research due diligence (Figure 1)

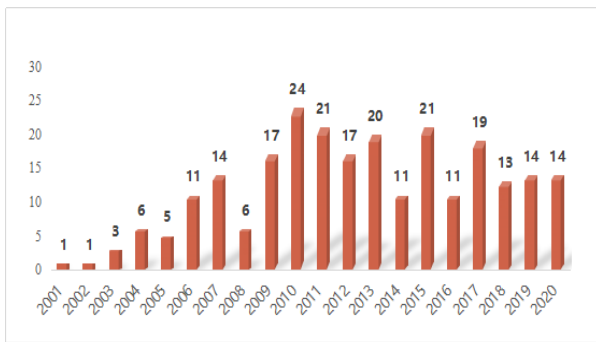


Figure 1. Time distribution of China due diligence publication from 2000 to 2020.

As shown in Figure 1, the time distribution of China due diligence publication can be divided into three periods.

1. The budding period (2001-2007). The domestic due diligence regulatory documents first appeared in 2001, and then domestic scholars began to pay attention to the related research of due diligence, showing a trend of gradual increase in the number of documents issued each year.

2. Explore the period of volatility (2008-2017). The domestic market economy has entered a period of rapid development. In order to reduce investment risks, corporate mergers and acquisitions, venture capital and other projects have successively carried out due diligence business. Domestic scholars' studies on due diligence related issues have seen large fluctuations and reached a peak of 24 articles in 2010. From then on to 2017, there was a wave-like change as a whole.

3. The period of stability and flatness (2018-2020). With the continuous advancement of the "Belt and Road" policy, more and more companies are investing abroad, and companies are facing multiple risks such as policies, laws, and funds. Domestic scholars have begun to explore legal due diligence, financial due diligence, etc. To reduce the overall investment of enterprises risks, the overall trend of domestic due diligence research shows a stable state.

3.2. Co-occurrence of the Authors

This paper uses Citespace software to analyze relevant domestic due diligence research literature, and conducts collaborative network analysis with the author as the

node. Author cooperation network analysis can reflect the core authors in a certain field and their cooperation intensity and mutual citation relationship, manage and guide due diligence development research activities, and promote the balanced and rapid development of research in this field [6].

Table 1. Authors of the top 10 published due diligence studies

Number	Frequency	Author	Starting year
1	43	Chen Feng	2000
2	3	Fang Yini	2015
3	2	Cui Yongmei	2011
4	2	Lu Jiehua	2015
5	2	Luo Yue	2011
6	2	Na Song	2015
7	2	Ma Lesheng	2006
8	2	Zhang Wanhong	2018
9	2	Wu Jinlong	2006
10	2	Wang Lu	2014

As shown in the results, the domestic due diligence development research author cooperation network contains a total of 341 nodes (N), indicating that 249 documents involve a total of 341 scholars, of which Chen Feng scholars have published up to 43 articles (Show in Table 1), which can be regarded as the core authors of "due diligence" research. Followed by scholars such as Fang Yini, Cui Yongmei, Wu Jinlong, etc, ranked in the top ten in terms of publication volume, occupying a large node position.

At the same time, the author's cooperation map contains a total of 196 edges (E), indicating that the cooperation between authors has reached 196 times. From the map, it can be seen that there are more small groups composed of connections. Among which the closest one is the small group composed by scholars such as Wang Junyan, Li Xiangbin and Chen Liping.

3.3. Co-occurrence of Organizations

The co-occurrence map of domestic due diligence research and publication of literature institutions, where each node represents an institution, and the node size represents the number of papers published by the institution. The larger the node, the more papers the institution publishes. The connection between nodes represents the cooperation relationship between organizations, and the thickness of the connection indicates the strength of the cooperation relationship between organizations [7].

According to Table 2, it can be seen that from 2000 to 2020, the Institute of Science and Technology Information of China was the institution with the most frequent occurrence, appearing 43 times in total, which was far more frequent than other institutions, and occupied the largest node position in the graph. The other institutions all appeared less than 10 times, and 4 of them published more than 2 papers, including law School of Renmin University of China (4 papers), Law School of Wuhan University (4 papers), Shanghai Headquarters of the People's Bank of China (3 papers), and China Academy of Forestry Sciences (3 papers). This shows

that there are great differences among institutions. It can be seen from this that due diligence institutions in China are relatively dispersed, research institutions have few exchanges and contacts, and relevant cooperative research is relatively lacking, which has not yet formed a large research scale. Moreover, the research institutions

with strong connection are often in the same region or department, and the cooperation between different regions or departments is still less. Relevant institutions are mainly concentrated in research institutes and universities, and banks and firms are also important research forces.

Table 2. Top 10 institutions with published due diligence research literature

Number	Frequency	Name of institution	Starting year
1	43	Institute of Science and Technology Information of China	2000
2	4	Chinese People’s Law College	2010
3	4	School of Law, Wuhan University	2015
4	3	Chinese Academy of Forestry	2014
5	3	People’s Bank of China Shanghai Headquarters	2009
6	2	University of Railway Police	2014
7	2	School of Economics, Nanjing University	2010
8	2	Shanghai University of Political Science and Law as an Example	2009
9	2	School of Economics and Management, Tongji University	2006
10	2	Jilin University	2004

4. Analysis of China due diligence Research Hotspots

4.1. Keywords Co-occurrence Analysis

If a keyword appears frequently, the topic it represents is a research hotspot. Keyword co-occurrence can analyze the degree of kinship between keywords, and then grasp the changing trend of research hotspots, and explore the hot perspective of China due diligence related research.

Through the analysis of Citespace software, a total of 414 keyword nodes and 697 links composed of them are obtained, and the network density (d) is 0.0082. It can be seen that there are many links among keywords in domestic due diligence research, but the degree of closeness is general. In addition to the basic keywords “due diligence”, the keywords frequently used by scholars are “credit business”, “intermediary agency”, “enterprise merger and acquisition”, “anti money laundering”, “credit rating agency”. Before making major decisions, enterprises highly rely on and have a huge demand for due diligence, especially in mergers and acquisitions and foreign investment, which promotes the rapid development and high specialization of due diligence in the economic field. Therefore, due diligence research on “enterprise merger and acquisition”, “credit business” and so on has become a research hotspot of scholars. The importance of due diligence has been paid attention to by academic circles and various social fields. To a certain extent, domestic due diligence research has gradually penetrated from theoretical research to deep level, which has improved the research quality of domestic due diligence.

4.2. Keyword Cluster Analysis

In order to more effectively grasp the research hotspots and trends of due diligence development, and to dig deeper into the deep-seated relationships between domestic due diligence development research hotspots, use the “Clustering” function to cluster the keywords according to their different characteristics [8].

Comprehensive comparison, the LLR algorithm provided by Citespace software is used for clustering topic extraction, and the clustering tags obtained are more in line with the actual situation and relatively less repetitive. Since the analysis data is a Chinese journal, the K clustering form is selected. The keyword co-citation network formed by the final analysis has a total of 19 clusters (only the first ten clusters are selected to display in this view). Therefore, it can be inferred that the highly co-cited keywords in the domestic due diligence research field have obvious clustering characteristics, and multiple clusters have been formed, and there is overlap between the clusters. The module value (Modularity) is $0.8357 > 0.3$, and the mean silhouette value (Mean Silhouette) is $0.6856 > 0.5$, which indicates that the clustering structure of the network is reasonable, and each module in the network is highly independent and has a certain correlation. It can be seen from Figure 6 that the largest cluster is “#0 debtor”, followed by “#1 intermediary agency”, and the third is “#2 dynamic evaluation”, which shows that this field has formed multiple research perspectives.

5. The Evolution of China Due Diligence Research Trends and Frontier Analysis

5.1. Research Trend Evolution Analysis

In order to explore the development and migration of cluster topics over time, a map or the China due diligence keyword cluster timeline was drawn. It can be analyzed from result that China due diligence research and development from 2000 to 2020 are consistent with the age of literature publication, which can be roughly divided into three stages.

1. Embryonic initial stage (2000-2007). Chinese normative documents of “Due Diligence” first appeared in 2001, and then Chinese scholars began to explore the due diligence gradually. Prior to 2007, research topics focused on ‘#0 Debtors’, ‘#1 Intermediaries’ and ‘#5 Integrations’, focusing on bank loans and credit

operations. After the subprime mortgage crisis [9], rating companies, commercial Banks and financial regulators were all condemned [10]. Since then, Chinese scholars have reflected on the behavior of such intermediaries [11], believing that they failed to fulfill their due diligence and regulatory risk responsibilities.

2. Professional research phase (2008-2016). In 2008, the Chinese market economy entered a period of rapid development. In order to reduce investment risks, enterprises' mergers and acquisitions, venture capital and other projects successively carried out due diligence business, focusing on “#2 Dynamic Evaluation”, “#3 Financial Institutions” and “#6 Credit Rating”. Then, has been “customer due diligence”, “human resources due diligence”, “financial due diligence”, provide specialized noun, including “due diligence” customer is the first line of defense to financial institutions in anti-money laundering [6], help to stem the financial system flaw, to prevent and curb the use of money wash crime financial system [12]. Before an enterprise makes a merger and reorganization plan, effective due diligence on the target enterprise will play a crucial role in the merger and reorganization plan. “Financial Due Diligence” can check the defects of the target enterprise in advance, gain insight into and reveal the potential risk points and value points of the target enterprise [13], and reduce the risks of merger and acquisition and integration of the enterprise [10]. And “human resource due diligence” can improve the success rate of due diligence and enterprise integration [10]. Chinese scholars are also gradually becoming more specialized in the issues related to due diligence, indicating that China due diligence research has shifted from the basic theoretical level to the practical analysis level and is used to solve problems in different fields.

3. In-depth exploration stage (2017-2020). Beginning in 2017, domestic due diligence has gradually become diversified exploration, which is mainly reflected in “#4 One Belt One Road” [9]. Combining with the country's “One Belt, One Road” policy development, researching the frontier issues of the country, touching on many areas such as internal financing [14], trust business [13], and supply chain finance [15], and putting forward specific due diligence procedures from a practical perspective around the goal of risk reduction [16]. However, due to the relatively short period of time for the development of due diligence in China, there are also differences in the development of various fields. How to achieve the integration of due diligence and various fields still needs further exploration.

5.2. Research Front Analysis

Research frontier can reflect research trends and emerging trends to a certain extent, and emergent words mainly reflect research frontier and predict future development direction. This paper uses emergence word detection to reveal the research frontier. The time node is selected as 1 year, and the node type is selected as keywords. Intercepting the top 30 words in the field of China due diligence research.

Domestic due diligence research continued to have emergent words from 2000 to 2020. Excluding the basic emergent word “due diligence”, emergent words with higher emergent values include “technical intelligence”, “research methods”, “corporate mergers and acquisitions”, and “technology”. “due diligence”, etc. The research highlights that continue to this day include “Belt and Road”, “Outbound Investment” and “Chinese Enterprise”. Combining the above keyword clustering, the dynamic frontiers of domestic due diligence research are as follows:

The first is legal due diligence in the context of the “Belt and Road” initiative. Since the “Belt and Road” strategic deployment in 2013, a new pattern of domestic foreign investment has been created, and domestic companies have also encountered legal risks caused by environmental differences in the host country. Scholars Zhang Min (2017) and Sun Lijuan (2018) believe that they are responsible Investigation is the first step to avoid this legal risk [13]. Liu Ding (2018) considers that the domestic financial legal system is weak, and financial legal risks will inevitably exist in the process of foreign investment [17]. Taking Laos as an example, six mechanisms including due diligence mechanisms need to be established while advancing the “Belt and Road” strategy. Yuan haochang (2019) analyzed China's investment in Serbia and found that there were capital risks in it. He proposed relevant improvement strategies by adopting due diligence method and constructing investment capital risk plan system in advance [14]. About one belt, one road, one belt, one road, is gradually diversified. In the future, more risks may arise. The pre investment due diligence is also worth studying. It is expected that the relevant research on the law due diligence will continue under the background of “one belt and one road”.

The second is financial due diligence under domestic corporate venture capital and mergers and acquisitions. The current domestic economic market mergers and acquisitions have become an important way for companies to achieve asset scale expansion and diversified development, but the results of most companies' mergers and acquisitions are not satisfactory. Liu Lu (2018) [18] takes Huarong Asset Management Company as an example to show that financial due diligence plays a crucial role before enterprise merger and acquisition. Quan Liping (2019) [19] uses a case study method to prove the risk identification ability of financial due diligence from the perspective of venture capital, which can reduce the uncertainty of venture capital. However, domestic scholars currently only conduct financial due diligence analysis for small-scale enterprises, and the scope of financial due diligence research needs to be expanded.

The third is the risk prevention and control of intermediary agencies and the establishment of a due diligence system. The financial leasing industry, banking industry, and trust industry are all facing greater credit risks. Scholars Yang Yufeng (2017) [20], Wang Bairong (2017) [21], Ruan Dan (2017) [22] and others have

proposed prevention and control strategies for these three industries to establish due diligence. The investigation system conducts prevention and control from the aspects of project risk and credit risk [23], and conducts prior, during and after supervision from the aspects of national policies, the financial situation of customers (lessees), and records of default [24]. The current domestic due diligence system for intermediary agencies is not perfect, and risk prevention and control will be an issue worthy of continued discussion.

6. Conclusion

Based on Citespace 5.6.R5, this paper makes a visual analysis of the literature in the field of due diligence research in China, and presents the publication distribution, scientific research cooperation, research hotspots and cutting-edge trends in the field of due diligence research in China from a global perspective. Study found that China due diligence research Chinese core journals overall number not much due diligence, the number of literature growth momentum is insufficient, the core of the cooperation between the scholars and research institutions is less, although have small groups cooperation but not seen large scale cooperation relations, involving disciplines are mainly concentrated in the field of economics, finance and management, part of the distribution in the field of law, literature, overall quality is not high, in China due diligence investigation of the present system of perfect did not play a leading role.

Due diligence investigation on Chinese enterprises mergers and acquisitions, credit business, intermediary institutions, anti-money laundering, the area along the research hot spot and so on, on the basis of analysis the time line, the China due diligence can be divided into three stages, from bud early stage of the theory of due diligence, development to the due diligence investigation of the stepwise refinement analysis professional research stage, to explore diversified development stage, but the existing studies have not form a unified research framework and evaluation system. Therefore, this paper combines with the keyword highlight map to draw the "One Belt One Road" legal due diligence investigation, venture capital and enterprise merger and acquisition financial due diligence investigation and the construction of the intermediary due diligence system three dynamic frontiers of due diligence research in China.

It is important to note that although through Citespace visualization analysis and literature measurement analysis can due diligence research from the angle of global dynamics and evolution in the field of analysis and demonstration, but limited to the analysis of CNKI database, Chinese scholars are published in the literature on the foreign periodicals are not included within the scope of the study, the analysis of foreign literature is also the content of the need to continue in the future.

Acknowledgment

This work was supported in part by Jiangxi Provincial Department of Education Graduate Innovation Fund Project: Jangxi province 2020 post graduate funding

project: Research on Risk Management of Due Diligence before Project Guarantee -- Taking Jiangxi Huazhang Hanchen Guarantee Company as an example(YC2020-S209).

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