



## **Using Analytical Hierarchy Process Methods in Cash Holding and Corporate Working Capital Management**

**WENJUN DU,<sup>1</sup> JEFFREY E. JARRETT<sup>2\*</sup> and XIA PAN<sup>3</sup>**

<sup>1</sup>Lingnan College, Sun Yat-sen University P.R., Guangzhou, China.

<sup>2</sup>University of Rhode Island, South Kingstown, Rhode Island, US.

<sup>3</sup>Wake Forest University, Winston-Salem, North Carolina, US.

### **Abstract**

Cash holding behavior is an important financial behavior of the company, which reflects the company's financial strategy and management strategy. What are the factors that affect corporate cash holdings? How does the change in these factors affect the change in corporate cash holdings? Starting from two aspects of national macroeconomic environmental factors and microeconomic environmental factors, this paper tries to analyze these factors and how they affect corporate cash holdings. Working Capital Management is an important part of the company's financial management, which is closely related to the value creation of the company. What is the content of working capital management? How to manage the working capital effectively? This paper expounds the contents of working capital management from the perspective of process management, and expounds how to effectively manage working capital from the perspective of situational management. To link these two areas is the goal of this study.



### **Article History**

Received: 24 August 2018

Accepted: 30 November 2018

### **Keywords**

Analytical Hierarchy Process (AHP);  
Cash Holding Factor;  
Operating Fund  
management Tool.

### **Introduction**


Cash holdings is an important financial behavior of the enterprise, and it is also an important financing channel for enterprises. It is more and more significant to the enterprise's financial strategy and investment decision. Because when enterprises are hard to get the external financing they need,

cash holdings as an important source of corporate investment are directly related to the long-term development of enterprises. At the same time, as an important part of resisting financial liquidity risk, cash holdings not only attract the attention of business managers, but also attract more and more attention from outside investors. Especially in the

**CONTACT** Jeffrey E. Jarrett ✉ [jejarrett133@gmail.com](mailto:jejarrett133@gmail.com) 📍 University of Rhode Island, South Kingstown, Rhode Island, US.



© 2019 The Author(s). Published by Enviro Research Publishers.

This is an  Open Access article licensed under a Creative Commons license: Attribution 4.0 International (CC-BY).

Doi: <http://dx.doi.org/10.12944/JBSFM.01.0102.05>

background of the global economy by the financial crisis in 2008 out of the business situation is good, many enterprises are "liquidity trap" over, this has prompted the liquidity risk of enterprises have a new understanding, so the corporate cash holdings also began to pay attention.

In recent decades, scholars have carried out a lot of research and Discussion on corporate cash holding behavior, and have formed rich research results. However, most of the researches on cash holding behavior in China only follow the ideas of foreign scholars, and make an empirical analysis of cash holdings of domestic listed companies, in order to verify whether foreign companies' cash holding factors are reflected in the data of domestic companies.

Working capital management is an important part of financial management, but the theory of enterprise working capital management is not enough attention, studies tend to complex mathematical model and theoretical calculation, not only the research results and the results of these studies in the practice of management has not been used, too. However, business innovation of working capital management practices has not stopped, especially the U.S. consulting firm REL and CFO magazine.<sup>1</sup> They emphasized that the management of working capital of enterprises should be liberated from complex mathematical models. They should be seen from the simple financial statement data, and guide enterprises to manage working capital from the whole.

However, there is no research yet on the internal relationship between corporate cash holdings and working capital management, because most of the researches on cash holding factors are empirical studies.

I am in the financial management practice, experience to the management of working capital, must jump out of the balance sheet, look to the financial management strategy, enterprise supply chain management and enterprise survival of the domestic economic environment and international environment, firmly grasp the cash management of working capital management of the core content in advance, sensing factors related to a variety

of changes in demand change on cash holdings, and take measures to adjust the working capital management strategy, can help enterprises to calmly face the risk, no risk and reasonable risk prevention solutions in an orderly manner. In fact, there is an urgent need for a management tool to link the factors that affect the company's cash holdings and the management of working capital, and transform these factors to the influence of cash holdings on the management of working capital. By tracking and predicting these factors, we can know the impact of factors on the management of working capital, so as to adjust management strategies and ensure the smooth operation of working capital management.

### **Research Goal**

The core of working capital management is cash management. Reasonable cash holding is an important goal of enterprise financial management. It not only affects the value of enterprises, but also affects the safety of enterprises. The factors that decide corporate cash holdings not only come from inside the enterprise, but also from the external factors of enterprises, their changes will inevitably lead to changes in the cash holdings of enterprises, and the change of core content is bound to create new requirements for the management of working capital of enterprises. How to find a practical management tool to manage this change in practice is a problem that many financial workers urgently need to solve. This paper takes a foreign-funded enterprise as an example, combined with some achievements of current theoretical and empirical research, trying to build a management tool, hoping to have some enlightenment to solve this problem.

### **Literature Review**

In a realistic trading environment, transactions are not without cost. A firm's cash holdings behavior is composed of a series of transactions; a rational investor should also have to consider the cost factors. When companies need cash, raising money from outside requires paying interest to creditors and paying dividends to shareholders; if they cannot get money from outside, companies must start from the inside and raise money by cutting investment, cutting dividends, or selling assets. If this happens, cash-strapped give the company a very high opportunity cost of holding cash and will lose the opportunity.<sup>2</sup> The model of transaction costs held by

cash is a trade-off between the cost of holding cash and the cash-holding gain, hence, the model is often referred to as trade-off theory. For example, when there is information asymmetry between the firm and the market, from the perspective of the external investor, they desire that the price of the stock to be purchased is not overestimated and therefore needs to be appropriately adjusted according to the average market level the stock price discount. From the insider's perspective, they want the equity price per share price to be at a market price that does not underestimate future value of earnings. Financial managers know very well information about the company's research and development, which is not known to the market. If that is not known by the public, the stock price will be inaccurately estimated by financial analysts which is often the case. Financial managers desire and desire the stock price to reflect the company's potential value, and the discount Price will undoubtedly underestimate the value of corporate stock.

From the perspective of corporate cash holdings, in the case of asymmetric information, the enterprise in order to avoid the high costs of external financing, we will take the initiative to hold more cash to avoid missing a profitable investment opportunity.

### **Optimal Financing Theory**

As the cost of external financing is generally relatively high, so companies prefer lower-cost internal financing. Only when there are insufficient internal funds, companies will consider external financing, but must be when external financing would also prefer the lower cost of debt financing. In contrast to trade-offs, optimal financing indicates that the increase or decrease of a company's cash holdings is related to the company's profitability.

Alternatively, management may hold large amounts of cash to meet their own interests, because huge amount of cash holdings reduces the need associated with cash shortages and reduce the associated difficulties of working capital management. If management faces favorable investment opportunities, there is enough internal cash to protect them from external financial regulation.<sup>3</sup> Therefore, the management of the company is often willing to leave large amounts of cash in hand instead of distributing it to the shareholders.

With the increase of its stake in the company's internal management, the interests of shareholders and executives will converge, agency costs will be gradually reduced, forming the so-called incentive effects of intra-corporate ownership of the company's cash holdings.<sup>4</sup> However, the company's cash holdings and company internal management personnel shareholding ratio is not necessarily linear, because with the increase of the proportion of shareholding of the internal management of the company's internal management personnel will find that due to external shareholders the proportion of shares is less and less, to effective restriction and supervision more difficult, so the internal managers will choose to hold more cash to meet their own interests, it has formed the proportion of shareholding of the company's internal management personnel hold against the effect of the amount of the company's cash.

Some studies put the relationship between banks and enterprises as a separate theoretical factor. In fact, it does not constitute an independent theoretical framework. Most of them can be explained by the theory of information asymmetry and the theory of agency costs. Because banks have certain advantages in supervising the company's activities and collecting and organizing information, banks are willing to provide loans to enterprises to convey the positive information of the enterprises to the outside, so that the external investors believe that the enterprises have good reputation and solvency. On the other hand, debt contracts between companies and banks are more likely to be extended or renewed through negotiations than other debt contracts, and it is easier for businesses to treat debt as one of the sources of cash. Therefore, firms with more bank debt will hold less cash.

Some studies also put forward the protection of shareholders' rights as a theory. In countries with better shareholder rights protection, listed companies will tend to reduce their cash holdings.<sup>4</sup> The protection of shareholders' rights and interests is rather complicated, involving a country's legal and political system, so sometimes it is also called the theory of corporate cash holdings under the institutional school theory framework. In fact, the problems it solves are still beyond the problems of agency costs and information asymmetries controlled

by management, better protection of shareholders' rights and interests, lower management agency costs and more perfect information disclosure requirements. It is also helpful to reduce the information asymmetry between management and external investors.

The theory of cash holdings is widely recognized as the trade-off theory. It has a solid theoretical foundation of economics. Since the theory of marginal cost and marginal revenue has been widely accepted, it is not only easy to understand in practice, but also confirmed by many empirical research institutes. The agency cost theory is accompanied by the separation of ownership and management of modern enterprises and developed, business owners no longer come forward to run, but they are replaced by professional managers to manage the business, but the behavior is not always professional managers and business Consistent with the interests of the owners, agency costs are generated. Of course, the behavior of corporate cash holdings also belongs to the professional managers of agency behavior, agency costs will inevitably appear. Of course, agency costs are, in a broad sense, still a category of marginal costs.

The information asymmetry theory is to explain the adverse selection problem when the market buyers and sellers do not understand the information about the traded goods asymmetrically. Applied to business management practice, corporate managers always have more than third-party internal corporate information, third parties can not exactly grasp the case of inside information of the target company, can only make a decision based on the average on the market, at this time, the real value of the enterprise

out of the market due to the price is underestimated, resulting in the problem of adverse selection.

**Empirical Study on Cash Holdings**

The earliest foreign empirical research on cash holdings is mainly to verify what kind of theory about cash holdings is supported by the actual data, which is usually used to examine the factors that determine the cash holdings of enterprises: book value, firm size, cash flow, net working capital, leverage ratio, capital expenditures, dividend policy, anti-directors and management rights and other stake. These studies can be divided into three types: (1) research using data from U.S. companies (2) research using data from single-country companies outside the U.S. (3) research using data from multiple countries. The purpose of all these studies is to try to find out what factors affect the cash holdings of companies and to try to find a theory that can better explain the data. But on the relationship between corporate cash holdings of several theories is not very clear, but according to cash holdings of these factors determine the theoretical sometimes overlap each other, it is difficult to clearly support one theory while opposition Another theory.

Recent research has shifted to the estimation of cash value,<sup>6</sup> but the macroeconomic factors have largely been neglected. However, the economic and political environment in which enterprises depend inevitably will have an impact on cash holdings have an impact, such as the nature of a country's real estate and financial asset markets on corporate cash holdings have a significant impact.

Ying and Zhou (2006), Liu and Yongming (2005), Xing and Sun (2006) and Dongzhi *et al.*, (2006)

**Table 1: List of Influencing Factors of Cash Holdings of Domestic Listed Companies**

Influencing Factor	A	B	C	D
Literature				
Firm Size	Not Significant	-		
Profitability	+			
Growth	+		Positive	

Literature: A: Taoying and Wei (2006); B: Guoliu and Yongming (2005); C: Xingquan, Jie (2006); D: Dongzhi *et al.*, (2006);

were also domestic listed company data for the study sample, come to their own conclusions. Research scholars' cash holdings above factors can be summarized as shown in the following list<sup>7</sup> (Frequency Data,):

### **Literature on the Working Capital Management**

After 1980, with the convergence of theoretical circles' understanding of the goals of financial management, scholars both at home and abroad have gradually accepted the maximization of corporate values as the goal of financial management. People working capital management is no longer confined to the study of balance sheet items, but consider collaboration and business management strategies, along with research and enterprise supply chain management and other activities, the affected companies increasingly value theory greater.<sup>9</sup>

Reinterprets working capital management from a management perspective. He noted that working capital management should include three parts - revenue management (sales and receivables), supply chain management (inventories and logistics) and expenditure management (purchasing and payment), companies can refine the management of working capital classification to bring the best for the company operating results.<sup>8</sup>

The company exists on the theory of optimal occupancy level of working capital, and to determine the optimal level study factors on working capital management cannot be separated.<sup>10</sup>

Is an early reveal the strategic impact of working capital due to factors scholar, and his research led to the recognition of corporate working capital management and its strategy are closely related. However, his research only focus on the areas of production, the project also includes only the assets of accounts receivable and inventory of two parts. In later studies, the factors affecting the appropriate level of working capital gradually went beyond the production area, expanding to the production and business activities of the entire company, and even taking into account the external environment of the enterprise. Companies must consider not only the factors that affect all working capital both inside and outside the organization, but also their sensitivity to changes in the environment.<sup>11</sup>

That companies almost impossible to achieve both minimization, asset utilization levels and inventory levels to maximize the most satisfactory of customer service, because when companies are trying to optimize one area, they often ignore the optimization. The negative impact of the process on the other two areas led to the second-best choice of the entire company's policy. The company's course of business uncertainty facing increases the difficulty to solve this dilemma, therefore, working capital management must account for the interaction with other management areas of the company.<sup>12</sup>

Additional research on the management of working capital is from the 1990s began, with the implementation of new accounting standards, people are increasingly aware of the "working capital" concept, began a study of its. From Fugen's (1995) paper, "On the Fundamentals of Working Capital Management" to Zhuquan and Guanglin (2005) published "Control of Distribution Channels: The Focus of Working Capital Management in Trans-regional Distribution Enterprises" in *Accounting Research*, Scholars have gradually turned their research perspective to balance sheet items and started to find the best ways and means of working capital management in their internal management. More and more, companies such as working capital management and supply chain management and customer relationship management relationships with other management activities, and strive to achieve a relatively balanced between corporate working capital management and other business management activities.

First, we introduced and evaluates the main theories about the cash holdings of enterprises. They are the trade-off theory, the agency cost theory, the order-wise financing theory, the information asymmetry theory and other theories. Then I make a brief review of the empirical research on the influential factors of foreign cash holdings, revealing that the research trend has gradually expanded beyond the corporate factors. This is why the macroeconomic factors that affect the cash holdings of enterprises discussed previously. Domestic factors related to cash holdings focused on the study of domestic listed company data, mainly to verify some of the traditional factors whether the body is now in China's company data. For working capital

management, this chapter introduces the main results of the study of foreign working capital: the concept of working capital management, working capital management factors of two ways. It can be seen that the management of corporate working capital has also come out of the balance sheet limit, beginning with the enterprise supply chain management and other production and management strategies together, more and more by other factors within the enterprise or even external factors influence, which of course also includes factors affecting corporate cash holdings.

### **Influencing Factors of Cash Holdings in Working Capital Management Efficiency of Firms**

Previously, we observed that the current research indicated no conclusion on the factors affecting the cash holdings of enterprises. Many empirical studies will draw some relevant factors, but none of them can theoretically explain why these factors are Not other. From the point of view of practical work, each company's situation is different. When referring to these commonly used influencing factors, it must be analyzed according to the special circumstances of its own company. In this paper, taking into account factors affecting cash holdings of extensive business, joined the country's macroeconomic environment factor analysis.

We observe a firm which is a wholly foreign owned enterprise, a 50% owned joint venture between France and the United States, producing and selling glass-ceramic panels. The product is mainly used for kitchen heating appliances, especially now widely used induction cooker, Western countries use it to make electric heating panels, as the kitchen's main cooking appliance, has gradually replaced the traditional gas stove.

Also known as Machin able crystallized glass ceramic, mica is a synthetic mica crystal phase based glass ceramics, generally domestic colloquially by Exterior Features. This material into several categories, including white plate, black crystal plate, color plates, transparent plates and others. One of the common market for the white panel and black crystal panels, is currently on the market more common induction cooker panel. Choi board and transparent board for the differentiation of products,

mainly in the high- end line, the general sales of smaller. Glass-ceramic suppliers in the domestic market can basically be divided into two camps: imports of sheet metal represented by Germany's SCHOTT, Japan's NEG, France's Okey and other enterprises; domestic products represented by Kanger, Daxian and Cody plates. Although the two plates in the basic composition of the same, but the performance of imported plates is much better than the domestic plate, the price is higher, there is no coincidence of the basic positioning. Because in previous years' domestic cooker industry expansion too fast, prompting the domestic micro- crystal glass panel production increase, price drop, while imports by the board price is too high, the market share is shrinking. Due to the financial turmoil in 2008 and the severe damage to the real estate industry in the United States, the market for foreign electric cookers also started to shrink as about half of the demand in foreign markets came from the renovation of new houses, which is closely related to the rise and fall of the real estate industry. At the same time, benefiting from the strong stimulus policies of the central government, the domestic demand for induction cooker instead of exuberant, prompting foreign suppliers to step up the snatch of the domestic market efforts, the market price dropped again and again to a level not much different from the domestic plate price.

### **Company's Financial Department Functions and Operating Mode**

The company's finance department is primarily responsible for the day-to-day financial operations of the company. The major functions include preparing the annual financial budget, tracking the progress and effectiveness of the implementation of the financial budget, working capital management, risk assessment and internal control, promoting cost savings and other Routine work in the finance department.

The financial department's mode of operation is a two-line model and is led by the French CFO and the local general manager. All major issues are discussed and decisions are made together. The chief financial officer focuses on the financial budget, internal reporting and internal control. The general manager, on the other hand, focuses on day-to-day



financial operations, control of production costs, and supply chain related working capital management.

The important problems facing the company's working capital management include several items. The company has a total of four factories, one of which is a glass smelting plant located in France. The remaining three are glass processing plants responsible for cutting the large glass out of the glass smelter into small pieces after the crystallization process according to customer needs, and then selling to customers. Since the original glass is from the smelter inside the group, most of the raw materials belong to the Group's internal sales. Processing plant production process is relatively simple, are generally based on customer orders production, production cycle is shorter. The current sales target is mainly several internationally renowned household appliances manufacturers, domestic customers, but not large-scale.

The main problems facing the current working capital management are:

1. How to determine the level of cash holdings: It is not clear what factors will affect the cash demand, only to see short-term changes in demand, but for those long-term factors are not aware of. Sometimes the wait for the long-term impact factors began to show when it was too late to take the most appropriate action, not only the company's capital management becomes inefficient, and increases the risks facing financial difficulties.
2. How to choose working capital management strategies: Although the working capital management and cash holding needs are closely linked, but the interaction between the two is not yet clear. Sometimes, although the demand for cash holdings is forecasted, how to deal with this change from the strategic changes in working capital management is still not available.

At present, most of these problems are solved based on work experience, which may not provide a convincing argument for change. Hence, difficulties in communication with other managers of the firm to take corrective action. Therefore, objectively, there is a need for a management tool that can combine the changes in the demand for cash holdings with tactics

for the management of working capital to provide a relatively objective basis for the firms' adjustment to the demand for cash holdings and relatively simple operational strategy. The following attempt to use the previous theories and methods involved to build a management tool for the company, the idea is to influence the cash holdings of enterprises to analyze the factors that combine the actual situation of the company to determine the direction of each factor and Cash holds the relationship of the change direction, and then uses the questionnaire combined with the AHP method to obtain the weight of each factor on the cash holdings of the enterprise, so as to calculate the overall level of influence of all the factors in the comparative period. According to this overall level, the average monthly differences in the level of corporate cash holdings need to be divided into three situations, combined with the situation management of working capital to adjust its management strategies to achieve the corporate cash holdings and corporate funds management purposes combined with each other.

#### **National Macroeconomic Factors Influencing Cash Holdings**

The macroeconomic of a nation is formed by the common participation and interaction of all the economies in the country. As the environment in which an individual life, the impact of the macro economy on the enterprise is obvious. One of cash holdings of daily management activities of enterprises, of course, inevitably affected the country and its macroeconomic changes, especially a country's financial and monetary policies, tend to produce long-term cash holdings of companies influences. The macroeconomic impact of the enterprise is many to choose from the perspective of the impact of corporate cash holdings, we can analyze these focus on the following aspects. GDP (Gross domestic products) has become a common macro-economic indicators of countries to measure the speed of development. With the rapid development of a country's macroeconomic, due to the overall market continues to expand, individual micro-enterprises usually present sales booming. Operating activities remain at relatively high levels, and the demand for cash is also on the rise.

From the business process to analyze the business is facing the prospect of growing sales, in order to

meet a steady stream of orders, companies need to continue to invest funds to purchase raw materials, expand production. The increase of sales will also make the funds occupied by the sales channels of the enterprises gradually increase. At this moment, the cash holdings of the enterprises have an increasing demand to cope with the continuous expansion of the scale of production and operation.

From a business investment process to analyze, then companies are often faced with various sorts of investment opportunities. For large mature companies, according to the pecking order theory, they are more inclined to use internal funds, then cash holdings companies have increasing needs in order to accumulate more funds from the inside, to avoid losing a good investment Opportunity. However, for those small and medium-sized growth enterprises, although they do not have the preference of using internal funds, according to the trade-off theory, holding moderate cash can reduce the financing cost of the enterprises, so the cash holdings of the enterprises also increase continuously demand.

From the process of corporate financing to analyze, when a country's GDP continued to grow, the country's overall supply of funds will be more adequate, then the business financing channels will be more, the cost of capital is relatively low. Enterprise business if relatively easy access to credit, it will tend to maintain relatively low levels of cash, but this will be particularly affected by the country's financial policy and credit policy, the impact on corporate cash holdings is not as big business activities and investment activities.

Based on the above three factors, in general, GDP changes and corporate cash holdings demand changes in the same direction. Inflation is usually measured by the CPI indicator, indicating the extent of price increases. In a macroeconomic environment with a rising inflation rate, as a micro-individual enterprise, their business activities are dull due to the ever-shrinking market they face.

From the business process to analyze, in a long-term inflation channel, due to rising product prices, according to the economics of supply and demand theory, market demand will continue to

decline. Faced with the uncertain market prospects, companies generally reduce their sales forecasts and reduce their production, so the funds used to purchase raw materials will continue to decrease. As a result, the demand for cash holdings will continue to decline. Of course, this is only based on long-term trends a. In the short term, because the company predicted the advent of inflation, the face of the sharp rise in raw material prices could, some companies will be large quantities of the advance purchase, the enterprise is a sudden increase in demand for cash, and then the impact of inflation on corporate cash. The change is positive. Therefore, in determining the direction of the impact to analyze specific issues, if only a short-term inflation expectation will rise will have to take into account the positive impact on its cash holdings; if long-term inflation in the state, in which case the Consider its reverse impact on cash holdings. Combined with the reality of our business, the short-term effects of inflation can be controlled through short-term plans of the company. The focus of the company is to predict and monitor the impact of changes in long-term factors on corporate cash holdings, so here we only consider inflation Long-term impact.

From the investment process of enterprises to analyze, as inflation led to the continuous devaluation of the purchasing power of money, then holding cash will bring about the devaluation of the currency, the marginal cost of cash holding companies continue to increase, according to the trade-off theory, the best cash holdings will be reduced. In the real work environment, enterprises often turn to invest excess cash in interest-bearing assets in the face of this situation, which leads to the continual reduction of cash holding needs of enterprises.

From the perspective of the fund-raising process of an enterprise, when a country is in an inflationary state, it usually means that there is ample capital in the market. In this case, the enterprise is more capable of financing and therefore tends to hold only a small amount of cash, so at this time. The demand for corporate cash holdings is reduced.

### **Short-Term Loan Interest Rates**

Short-term loans refer to loans with a loan term of not more than one year, which is the main channel for short-term financing of enterprises. This factor



is not to companies producing too much impact the process, it primarily affects corporate investment and financing activities. It is foreseeable that with the rise of short-term loan interest rates, corporate financing costs continue to rise. According to the trade-off theory, the cost of cash holdings will continue to decrease. As a result, enterprises will gradually reduce their reliance on bank loans and shift their cash reserves. To reduce the financing costs of enterprises. On the other hand, the rise of short-term loan interest rate will also lead to an increase in the expected rate of return on investment. This will reduce the number of projects that meet the ROI criteria of enterprises.

Therefore, as short-term lending rates rise, the investment activities of enterprises will be further weakened. Thus reducing the need for corporate cash holdings. One-year bank loan interest rates as measured by corporate demand for cash holdings and short-term lending rates in the same direction changes.

### **Government Deficit**

The fiscal deficit is the difference between the financial expenditure and the fiscal revenue. Since the accounting is handled in red, it is called the fiscal deficit. The fiscal deficit is a manifestation of the failure of fiscal balance to reach a balance and is a worldwide financial phenomenon. Due to the large differences between the total national economies, it is internationally accepted that the fiscal deficit as a percentage of GDP to measure the level of a country's fiscal deficit, with 3% as the standard, exceeding this ratio means that the country's high level of fiscal deficit.

The deficit on the impact of cash held by companies not directly, it mainly is by changing people to influence inflation expectations determine corporate cash holdings, a leading indicator of inflation. Because a country's deficit eventually to make up, but the most direct way than to print money to solve, which will directly promote people's expectations of future inflation, thereby affecting the cash holding decision.

Cash holdings as a corporate working capital management activities, cannot do without which it is cast inside the enterprise environment, subject

to the constraints of their own set of conditions, and it does not only suffer financial enterprise management activities affected, will also be companies other Impact of management activities. On this subject, many scholars at home and abroad have used empirical methods to study these factors respectively, but most of them are the researches of external researchers on the public information of listed companies. Internal management needs to start, with some of their own characteristics to analyze. Therefore, this article in selecting which of these factors, it is already fully taken into account the actual situation of enterprises, such as corporate governance factors associated with the very companies it is not in the select list.

Whether the existing theoretical research and empirical research, are not carried out proper classification of factors affecting the company's cash holdings, and some simply divided into corporate governance factors and non-corporate governance factors. These factors are always around cash factors play a role in, and the financial cash flow statement have a natural link, entirely possible in accordance with the structure of the cash flow statement to classify them into "business operations elements," "corporate investment activities elements" and "elements of corporate finance activities."

Business activities is measured from the receipt of customer orders began, procurement of raw materials, production, and finally the products to the customer a range of value-added activities, the balance sheet included in the main stream of the majority of current assets and current liabilities project.

The conversion of working capital from asset form to cash is converted into raw material during the procurement process. Raw materials are converted into work-in-process and finished products in the process of production. Finished goods are converted into accounts receivable during the sales process, and finally from accounts receivable to cash to complete a cycle of cash.<sup>13</sup> This cycle is the most major part of the value chain, the concept of the value chain, the company has a dual identity suppliers and customers, companies need special attention to the interests of customers whose survival in the chain, because the loss of customers will lose the

market, it is Will lose the foundation of business survival. Enterprises should be the focus expanded from the enterprises themselves to their living environment, the value of the relationship between competition and cooperation between enterprises on the chain to fully understand and grasp, so as to formulate and implement phase to be a strategy to enable enterprises to get value. As the main activity carrier of enterprise value chain, the working capital management of enterprises occupies an important position in the management activities of enterprises, and a good index system is needed to measure the management efficiency.<sup>14</sup>

In order to overcome the traditional indicators such as inventory turnover, accounts receivable turnover, accounts payable turnover only focus on the part of the overall lack of understanding of the drawbacks, this paper uses the cash conversion cycle to assess the working capital management efficiency as follows:

Cash Cycle = accounts receivable + inventory turnover payback period - accounts payable turnover

Receivables Payback Period =  $360 * \text{Mean Accounts Receivable Balance} / \text{Net Sales Revenue}$

Inventory turnover period =  $360 * \text{Mean balance of inventories} / \text{sales costs}$

Accounts Payable Turnover =  $360 * \text{Mean Accounts Payable Balance} / \text{Net Purchases}$

From the above analysis, we can see that the higher the management efficiency of working capital, the shorter the cash turnover period, the less time for cash to stay in other assets. In other words, the cash needed to invest in other assets. The less the company's cash holdings, the lower the need.

Kim (1998) to "inventory turnover + accounts receivable recovery period a payable turnover," as the average turnover of cash, their empirical research shows that corporate cash holdings and the company's cash flow Significant negative correlation.<sup>15</sup>

### **Growth Ability - Sales Growth Rate**

Firms are facing a changing market, whether the overall market changes or changes in the market share of enterprises, will have an impact on business sales. Growth of Firms is embodied in the company's sales growth, because sales is a key part of the enterprise value of the activities of all qualitative changes, no sales, all the activities of enterprises do not have the market bearing recognize, even survival has become a problem.<sup>16</sup> Therefore, sales growth is a crucial indicator of a company's ability to grow. The measure of sales growth can be evaluated in terms of the ratio of net sales to the base period.

When the company's sales revenue continues to grow, usually need to invest more money to the supply chain. To cope with the ever-expanding scale of production, companies need to purchase more materials, produce more in-kind products and finished products, and sometimes generate large amounts of inventory when distributing them through channels. Acceptable accounts receivable occupancy will grow, then the company's cash holdings demand will rise. Furthermore. It is worth mentioning that, not only the actual sales growth will bring about capital occupation, but also the expectation of sales growth will bring about capital occupation, because enterprises generally respond to this expectation in advance, and they will make relevant purchases in advance. We call them active capital occupation. The actual performance of the work is usually based on the annual sales budget to see if the production capacity is not keep up, if there is a gap, the company will generally carry out a planned expansion of capital expansion, which will make the amount of capital expenditures increased. Even without increasing production capacity, enterprises will be based on sales budget procurement arrangements in advance, thereby increasing the company's capital.

Corporate profits, as the ultimate source of cash, have a significant and long-term impact on the cash flow of an enterprise. A long-term loss of business, although the temporary cash flow through financial means, but the impact is short-term, is lent, and ultimately to be returned. If you cannot get your own cash flow from operating profit, businesses will

sooner or later face the situation of cash depletion. A normally run business may have always been profitable, but if there is not enough vigilance about the long-term declining trend in profitability, there will be a gradual cash flow problem, especially as business sales continue to grow. The growth of sales will make enterprises occupy more and more funds. All of these will require enterprises to make up for the shortage of funds through the form of profits. The long-term drop in profit margin means the decrease in the efficiency of capital utilization, resulting in the escaping effect of cash and ultimately is an optimal result.

To better measure the change of the efficiency of production and business activities, this study uses the pre-tax interest income minus the depreciation and amortization as the measure of corporate profits. The change of corporate profit margin is a long-term factor that affects the cash holdings of enterprises. When the profit rate of enterprises keeps steady growth or remains basically unchanged, the company expects the cash from the latter profits to be relatively stable and reliable, thus reducing the current cash holdings. Conversely, businesses will increase the current cash holdings.

#### **Business Investment Activity Due to Factors; Investment Opportunities**

The loss of profitable investment opportunities means that if the company does not have enough cash, it will be forced to forgo good projects. Therefore, the more such investment opportunities, the stronger the need for cash holdings.<sup>17</sup> Because the net present value of corporate profits of investment projects in the enterprise occurred financial difficulties to time to be almost disappear. So have more profitable investment projects of enterprises will tend to maintain a high level of cash holdings, in order to avoid the occurrence of financial distress probability. Oscan, etc. (2004) to " (book assets value of a company's equity book value + market value of company equity) the book value of the assets and the" investment opportunities proxy variables by UK listed companies from 1995 to 1999 data research shows that the company's investment opportunities and the company's cash holdings are significantly and positively correlated.<sup>15</sup>

The investment opportunities of an enterprise generally appear in the form of a capital expenditure budget, which is a long-term fund occupation of an enterprise. If it is an enterprise's internal investment, its recovery generally takes the form of depreciation of fixed assets and amortization of other assets. If it is an enterprise of the external investment, its recovery is usually received in the form of dividends or interest in the form. Business investment time is not regular, some months will invest a lot of money, and some may not have the investment, which makes tracking this indicator between the months is very difficult. In order to accurately measure the impact of corporate investment on cash holdings, we use the yearly indicator of investment, that is, the growth rate of total investment in next year as compared with the total investment in the base period, as a tracking indicator. In each month of the year, this indicator is all the same.

#### **Cash Substitute Ratio**

Cash substitutes are current assets that can be quickly converted into cash, with lower conversion costs, including short-term investments and bills receivable. Short-term investments refer to bonds, treasury bonds and bank time deposits that can be traded in the open market within 12 months. Bonds can be sold on the open market for cash, and bank time deposits of up to 12 months can also be requested from the banks to be due for early maturity to cash. Bills receivable refers to the receipt of the customer's bank acceptance bills, commercial acceptance bills, bank bills and other financial instruments, which can be quickly converted into cash discounted bills.

Cash-alternative ratio = (short-term investment notes +) / flow property

The higher cash alternatives ratio, indicating that business flowing assets can be quickly converted into cash assets ratio is also higher, in other words, back-up source of cash is also more fully, so companies need to hold cash is not so strong.

#### **The Stability of Cash Flow**

Since the production and operation activities of the cycle resistance, coupled with the company's

investment and financing activities are also full of uncertainty, and the resulting cash flow is not stable. Sometimes customers focus on payment, cash income surge, and sometimes to focus on payment, cash payments and surge, coupled with the dividend distribution or corporate finance factors, corporate cash flow is always the same as the tide, sometimes high and sometimes low. The measure of cash flow stability can be evaluated by the variance of cash balances.

Average cash balance = average cash balance over the past 12 months

Variance of Cash Balance = SQUARE (Cash Balance for the Period - Cash Average Balance)

The larger the variance of the cash balance, the poorer the stability of cash flow, the more unpredictable factors of business activities. In order to cope with these contingencies, enterprises often need to prepare extra cash, and the demand for cash holdings of enterprises will also increase.

Opler *et al.*, (1999) take the standard deviation of the cash flow of the company as the proxy variable of the

company's cash flow uncertainty. Based on the data from 1952-1994 of American listed Companies, the uncertainty of the cash flow of the company and the cash holding resulted positive correlation.<sup>15</sup>

Dividend is the return paid by the enterprise to investors. There are common stock dividends and cash dividends. From the impact on corporate cash flow, cash dividends are usually the object of inspection. From the perspective of the company's dividend policy, the cash dividend is rigid and has strong policy continuity. As a result, it becomes a fixed cash outlay for the enterprise. Companies that adopt a high payout policy usually need to hold large amounts of cash to meet the expenses until the dividend payout date.

However, the dividend payment is usually a one-time, a large number of cash payments paid in the month, while the addition of time and there is no cash outlay. In order to better predict the impact on the dividend payment of cash holdings, annual targets we can use dividend payments, which is expected next year with respect to dividend payment of dividend payments based on years of growth to measure its cash holding companies. In

**Table 2: List of Factors Affecting Cash Holdings by Business Unit**

Categories of Cash Holding Factors	Cash Holding Factor	Impact on Cash Holdings
Macroeconomic Factors	GDP	+
	Inflation	-
	Short-term Interest Rate	+
	Government Deficit	-
Enterprise Operational Activities	Working capital managerial efficiency	-
	Growth Capability	+
	Profit Capability	-
Enterprise Investment Activities	Investment Opportunities	+
	Cash Flow Stability	-
	Ratio of Cash Substitutes	-
Enterprise Financing Activities	Dividend Payments	+
	Debt level - debt ratio	+
	Term structure – current ratio	+

some cases, the same indicator is used for each month of the following year.

Liabilities and rights and interests together constitute the source of corporate funds, liabilities refer to the enterprise to borrow funds from external creditors, is creditors transfer of cash right of use. Because the replacement of cash flow, so that companies may use the funds to invest in profitable investment projects, but also because of the replacement of cash flow, companies need to pay creditors royalties human capital, that interest.

As for the influence of debt level on the cash holding behavior of enterprises, there is not a unified conclusion in the existing theoretical research. Some theories think that the high debt level reflects the firm's strong debt- servicing ability.<sup>17</sup> According to the theory of information asymmetry, an external creditor may think that since someone dares to lend money to this enterprise, indicating that this enterprise has an unknown solvency ability, so I should lend it to the question should not be large, then business as easy access to external financing, it will tend to reduce cash holdings, this time cash holdings of corporate debt levels and negative correlation.

Another theory is that the higher the level of corporate debt, the greater the risk of financial distress, so companies need to maintain a high level of cash to meet the payment risk may occur at any time.<sup>17</sup> According to the trade-off theory, the cost of holding cash by an enterprise at this time will be lower than the cost of externally financing the enterprise, so the enterprise will hold more cash to replace the external high-cost financing. The level of debt at this time is positively correlated with the cash holdings of the firm.

These seemingly contradictory theories, refer to instance of a small corporate debt level. In that instance, low credit firms cannot easily hide debt and the external financing of firms is more difficult. The result is often to increase in cash relative to debt. In a firm has a higher debt level than the level of acceptable risk to external creditors, firms find it difficult to obtain external financing and will tend to increase cash holdings. If the debt level of the enterprise is modest, the cash holding of the

enterprise will have a reverse effect with the level of the enterprise's debt. If the asset-liability ratio of the Company in was only less than 10% as it has been in the past, we focus on the positive impact on low debt levels.

### **The Term Structure of the Debt**

The term structure of debt refers to the proportion of long-term debt and short-term debt in the corporate debt. According to information asymmetry theory, companies to choose debt maturity is in fact reflect the corporate level of information asymmetry.<sup>18</sup> There is a more and more asymmetry of information companies are more likely to choose short-term debt, because short-term debt for general corporate information disclosure requirements less stringent. The higher the level of short-term liabilities of enterprises, external creditors will think that the higher the degree of asymmetry of enterprise information, enterprise the possibility of obtaining loans are also lower, because this company needs to hold more cash to meet capital requirements of production and operation. Also due to the short-term liabilities of the period are less than one year, the pressure on the company's large debt service, so the higher the level of short-term liabilities of enterprises, the financial difficulties they face greater risks, in order to avoid the occurrence of financial difficulties, companies that when will choose to hold more cash to deal with potential risks. Long-term liabilities, by contrast, the higher the level of long-term debt and short-term liabilities, meaning strong external supervision so that the enterprise information asymmetry of degree lower, then enterprises to obtain external financing probability is higher, the cost of financing more Low, so businesses tend to reduce cash holdings. Also due to the long-term debt repayment of the term relatively long, financial pressure is not so big, companies face financial distress risk will be relatively low, so companies need cash held by the less.

For each factor, this paper focuses on how the factor has an impact on the cash holdings of enterprises, clarifies the relationship between the direction of its change and the direction of cash holdings, and lays the foundation for building management tools. The various effects can be summarized in the following table:

## Conclusions

From the cornerstones of capital finance, we see that there is a great deal to learn from valuing the assets of a firm. In this case, we have no interest in intellectual capital nor intangible assets discussed by others.<sup>25</sup> Our search for value and the managing of cash holdings consider only how firms react to those many problems involving the delivery and distribution of cash as it effects the daily life of a firms. The conclusions and subjects for future research focus on experiences of many those who originated most of the observations and comments noted. Future questions may include further study from questionnaires and /or focus groups of those operating in the area of working capital management.

This study from its start aimed at factors affecting cash holdings combined with the actual examination of a firm. The national macro-economic and micro-economic enterprises launched two levels for each analysis factors, and with reference to the classification of the cash flow statement enterprise microeconomic factors points. For three categories: business operating factors, business investment activities and business financing activities, to better understand the relationship between these factors provides a new perspective. This article continues to contact the actual situation of the company, further discusses the relationship between the change direction of the influencing factors of cash holdings and the change direction of cash holdings, and draws a conclusion. At the same time, using the AHP method combined with the questionnaire survey, the influence of various factors on the change of cash holdings has been analyzed, and the conclusion has been drawn. Using these two conclusions, we can calculate the impact of changes of various factors in the comparison period on the changes of the cash

holdings of the enterprises. By comparison, we can know the overall level of changes in the cash holdings of the enterprises during the comparison of all the factors in the comparison period. Compared with the average level of the past 12 months, we can determine which period of cash holding needs change during the comparative period. Combining with the situation management of working capital, we can make an analysis on the working capital management strategy from the perspective of process management Adjust to effectively manage the company's liquidity. This not only helps to understand the relationship between corporate cash holdings and corporate working capital management, but also provides a new method and new tool for the management of corporate working capital from the perspective of practical work. At present, most of the studies on the factors that affect the holding of cash in enterprises are in the empirical stage. There is no theoretical research and no unified conclusion. For practical workers, what factors should be selected should be combined with the situation of the enterprises. There is no standard and more difficult Great hope that future research will improve the situation. Another question is how to reasonably determine the weight of each element of change in cash holdings, which may also be an unanswered question. On the one hand both theoretical research and empirical research are rarely involved in this, there is no ready-made results for reference. On the other hand, even a reference is hard to use in practice because the situation varies greatly for each company. AHP method is a more eclectic way, but this is affected by the choice of the group when conducting the survey, the choice of different groups may have different results, how to further refine the process of research and to regulate, and this is the hope that later the research can be further improved.

## References

1. Zhuquan, W., Yong, F. & J-Q Sun (2007) "Domestic and foreign working capital management research review and forecast"
2. Dittmar, A. Mahrt-Smith, J. & H. Servaes (2002) "Corporate Liquidity" Draft May, 2002; 3-5
3. Kytönen. E (2005) "Corporate liquidity holdings: An empirical investigation of Finnish firms," XXII Summer Seminar in Business and Economics, Jyväskylä, Finland, June 8-9, 2-6
4. Hongyan, Z (2007) "Cash holdings of China's enterprises status quo and prospects," Accounting Monthly (consolidated).
5. Brealey, Myers & Allen (2017) Principles of Corporate Finance (McGraw-Hill/Irwin Series in Finance, Insurance, and Real Estate)



6. Mahajan, A (2007) "Macroeconomic factors with corporate liquidity." January 15, 2007
7. Chunfeng, H.X., (2010) "Shanxi University, Finance and Economics 2010 Nian 1 month second 32 Volume 1 Qi
8. Colina, J. (2002) "Working Capital Optimization", Pulp & Paper, p. 64
9. Zariyawati, M., Taufiq, A. & A.S. Abdulrahim (2009) "Working Capital Management and Corporate Performance: Case of Malaysia, 5, 11, *Journal of Modern Accounting and the Auditing*, 5, 11 ISSN 1548 - 6583, USA 47-49
10. Nobanee, H., AlShattarat, W.K., & Haddad, A.E. (2009). Optimizing Working Capital Management, *SSRN Electronic Library*. SSRN-ID: 1528894, 1-10
- 11/ Nunn K. (1981)"The Strategic Determinants of Working Capital: A Product-line Perspective", *Journal of Financial Research*, 3, 207-219
12. Antanies, J. (2002) "Recognizing the Effects of Uncertainty to Achieve Working Capital Efficiency", Pulp & Paper, July 2002, P46
13. Biao D. (2009) "Value Management of Enterprises in customer management; accounting through-hole- mechanized units, "(in) 2009, Year 2 Qi
14. Yonge, & S. Yan (2009) "Working capital management efficiency and corporate performance analysis"; Cai Qi through holes • Comprehensive (under) 5
15. Chen, Hua, D. & J. Li (2006) "Summary of cash holdings in foreign companies," 9, 20, 9
16. Zhang, X. & S. Sun (2009) "Based on the value chain of enterprise operating capital management," financial winter hole • integrated (in) 2009 the eighth period
17. Jie, S. (2008) "Cash holdings theoretical model of Western," *Scholars Enterprise Review; Maritime College of Engineering*, 9, 1, 1
18. Jinhui, L. & Vandy (2008)" Anti-; effects of debt financing for corporate cash holdings," Shanxi University newspaper, 9, 30, 9
19. Yue, T. & Li, Y. (2008) "Working capital management and the company's long-term debt; finance and accounting through holes • Academic 2008 Year 1 Qi
20. S. Shiyang, & B. Zhiwei (2007) "AHP application in the enterprise working capital management; Huai Yin Institute of Technology first 16 Volume 4 Qi 2007 Nian 8 Yue
21. Liu, Q (2008)" , " *Modern Management Science* , 10
22. Zhang, H (2009) "Working capital management of the supply chain," *Economic and Technological cooperation*," 3 (total of 365 Qi)
23. Yu, Z. (2009) "Empirical Analysis of Chinese Manufacturing Listed Companies working capital management strategy selection "Market Modernization 2009 Nian 5 Yue (Xunkan on) a total of 574
24. Yun, H. & W. Lin (2007) "Enterprise Working Capital Management Issues; Dissertations," Tianjin University of Finance and Economics
25. Jarrett, J.E. (2017A) "The problems of financial reporting false information by misusing estimation methodology," *International Research Journal of Applied Finance*, 8,10
26. Jarrett, J.E. (2017B) "Intangible Assets, Intellectual property and the misreporting of financial events," *Journal of business & Financial Affairs*, 6, 4