After China's entry into WTO, Study on National Bond Market and Market Prime Interest Rate

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Abstract: After China's entry into WTO, all the financial institutions will compete in an equal frame work. In this context, interest marketing rates becomes all the more important. Market Prime interest is the interest rate that plays a dominant role in the coexistence of many other interest rates. It is the major reference for pricing financial products on the financial market; it is also highly valued interest rate that is accepted by the public. Under the condition of the marketing of interest rates, all financial products are first of all dependent on an acceptable referable interest rate. Under interest rate marketing, all financial products depend on a "zero risk financial product profit rate." This prime interest rate is the center of the financial market. With the speeding up of interest rate market, market prime interest rate has become an issue that draws attention and must be solved. The paper uses IS-LM Model for theoretical analysis, analyzing the necessity of using national bonds as prime interest rate. With positive analysis the paper explores the role reform of national bond market plays in the development of interest rate market.

Key Words: National bond market, national interest rate, prime interest rate

1 Introduce

The opening and liberalized development of financial industry is an inevitably choice of financial development and world economics. All the country in the world besides China will join it so long as the market economy is to be implemented. The interest rate is the fund price. After entering WTO, the financial institution of all the country needs a identical fair environment to compete with each other. In order to guarantee the stability of the macroscopic economics and create a good economic environment for the foreign capital bank, Central Bank needs to establish a consummate monetary policy tool and a regulative method, so the question of market interest rate appears especially important. The reform goal of interest rate marketability is to establish a policy tool, which takes the money market as the datum. This tool not only can make the market supply and demand play a foundational role, but also can make the Central Bank regulation money market interest rate. And through it imposing effective impact on the level and structure of interest rate[1]. The market prime interest rate works well under the condition that many kinds of interest rates coexists together, and in the money market it is an important reference for the determination of all financial product's price, so it is the most important and valuable reference that people generally accept. Under the interest rate marketability condition, all financial products' prices fixing need take the acknowledged "zero risk financial product profit rate." As a reference system. The datum interest rate is the core of money market[2]. Under the interest rate marketability environment, the bank must establish the different loan interest rate for the enterprise with different risk according to the curve of national bond returns ratio; In the bond market, the investor makes the appraisal to the enterprise bond of different credit rank according to the national bond the income in the corresponding period; in the stock market, the datum interest rate may help the investor to decide whether it is worth to invest.

The interest rate effect of national bond is decided by the changes economical variables, such as the investment, the deposit, the money supply and demand, the price level, the national income, the price anticipated and so on, the national bond release influence interest rate levels through these economical variables. But this interest rate effect of national bond is not very typical in the transition economy in china. The degree that our national bond's releasing influence upon the interest rate through economical variable is increased gradually along with the reform of economical marketability. It is the reform of national bond marketability that impels the interest rate marketability. This effect of the national bond interest rate has the vital significance in Chinese economic transformation, since the finance monetary system reform has not been achieved in our economic transition period, the interest rate is controlled primarily and moneytary financially released. As the result of it, the increasing of national bond's scale and its proportion it accounts for in the GDP influence the change of interest rate is very irregular. The aftermarket of Chinese national bond and it's return ratio have been formed, bond release introduced competitiveness tender mechanism, the repurchase of the national bond leaded to the interest rate marketability. The national bond future experiment and the open market business of the National Central Bank bond operates in recent years has promoted the course of the interest rate marketability. Therefore thoroughly discusses the national bond marketability reform, analyzes Chinese national bond interest rate to become the condition of prime interest rate as well as further strength the national bond marketability reform, push forward the formation of basis interest rate, it has an extremely important and practical significance.

2 Economic analysis of the national bond interest rate effect

We may use various modern economic theory and method to study the national bond interest rate effect. there IS—LM model proposed by Hickes and Hansen, has amended and supplemented by many economists in the world. It has already became a basic analysis tool for the neoclassic synthesis interest rate decision theory[3].

2.1 the IS—LM Model and the restriction condition of government budget

Firstly, we suppose that（1）The government expenditure's increasing can cause the financial deficit;

（2）The financial deficit can be makeup through floats a national bond loan. Therefore the government expenditure's increasing namely meant the scale expansion of the national bond loan. This hypothesis conforms to actual situation of Chinese present finance operation.

Again according to the national income decision theory and IS—LM analysis frame, we have the following equality:

$$Y=C+I+G \qquad (1)$$

Y:national income；

C:individual consumption；

I:individual investment；

G:government expend；

C－C（Y）；

the function of consume $0 \prec \frac{dc}{dy} \prec 1$

Ⅰ－I（r）：the function of invest；

r : market rate， $\frac{dI}{dr} \prec 0$

Ms/P=I (Y,r) （2）

Ms: Nominal money supply;

P: Price level;

Ms/P: Actual money supply;

L(Y,r):the function of money demand $\frac{\partial L}{\partial Y} \succ 0$, $\frac{\partial L}{\partial r} \prec 0$.

G－ T= Ms/P＋ B/P (3)

B: supplies of national bond;

T: tax;

The formula (1) expressed the balanced condition of commodity market. There, money supply is decided by the money authority. If the money market is at the balanced condition, then the money supply is equal to the money demand.

The formula (3) is talk about the government budget condition. The part that government budget disbursement surpasses the budgetary revenue may be marked up through increasing money supply and floating a national bond loan. Here we use the national bond to make up the deficit, so the formula (3) can be rewritten as: △G－△T=△B/P.

2.2 National bond interest rate effect under money supply invariable condition

Supposes the economy to be at the non- full employment condition, the interest rate effect of national bond release and the money demand function has a close relationship while the money supply is invariable. If the economic cycle is at the depression stage, public's income become lower, then the demand of transaction money reduced; the interest rate can reduce to a lower level when the anticipated profit margin of the investment reduced. At this time the majority of the money storage transformed to the property money, and the public's property money demand change the infinity to the interest rate.

The tendency of economy is that the income continues to grow and the demand of transaction money continues to increase. If the economy achieves the full employment level, the government expenditure expands because of the national bond release only can cause the IS curve to move, namely upwardly transfers to IS_2 by IS_2', at the same time we suppose the money supply invariable, the interest rate can rise to a high level, for example, rises from r_2 to r_2 ', the final money storage quantity will transform to the transaction money. If the public have no property money, then the demand would not influenced by the interest rate (as the chart1 show), the LM curve also presents the vertical condition (as classical region above the Fig.1B inflection point show). In this situation, it is very difficult for the government to distribute the national bond, for the interest rate had to rise to the degree at which the advantageous of bought the national bond is much more than the public's direct investment.

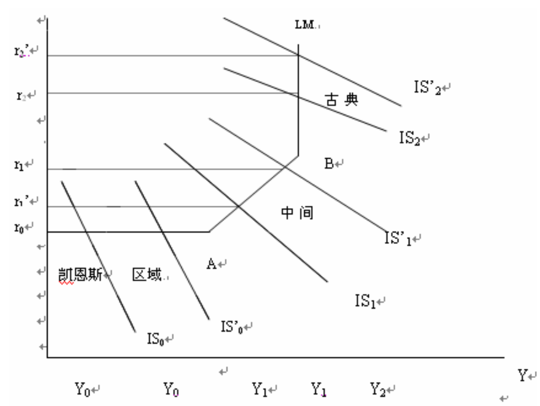

Fig .1 National bond release interest rate effect when the currency supplies invariable

2.3National bond interest rate effect under money supply increasing condition

Now supposes that when the national bond release the money supply corresponding increase, and the hypothesis economy is at the non- full employment condition, this time the IS curve and the LM curve will move to the right, along with it the income increasing. But in Keynes region, because the economy falls into the fluid trap, the interest rate already is the lowest one, thus this time although the IS curve move to the right lateral IS_0'from IS_0 and income Y also increase to Y_0 ’from Y_0, the LM curve still in the fluid trap, and the interest rate r_0 was invariable.

The substantive significance of the influence that national bond release and the currency supply increases upon the interest rate is that the LM curve is in the intermediate region at the slope condition. As the chart 2 shows, if government’s national bond financing expenditure increases, the IS curve will move to right lateral IS_3 from the IS_1, and the currency supplies also increases, then the LM curve move to right lateral $LM_1$from LM_0, the income enhances from Y_1 to Y_3, and the interest rate r_1 is invariable; if the government’s expenditure is small, IS_1 move to right lateral IS_2, so when currency supplies increase, the income will increase from Y_1 to Y_2 and the interest rate fall from r_1 to r_2; but if government expenditure on the national bond financing is huge, IS_1 move right lateral to IS_4, then when currency supplies increase, the income will increase to Y_4 by Y_1, and the interest rate rises by r_1 to r_3.

Again we suppose that the economy is at the full employment condition, this time, government expenditure on the national bond financing and the money supply increase together, the interest rate change then will appear short, center, long-term three kind of situations. As Fig 3 shows, interest rate level r_0 is decided by the IS_0 and the LM_0 curve, under the original state, R_0 and Y_0 are the balanced interest rate and balanced output for full employment. The government expenditure’s increasing on the national bond financing make IS_0 move to IS_1, and the interest rate rise to R_1, the output is Y_1. Increased the money supply at this time, the LM curve will transfer to LM_1 from LM_0, the interest rate will drop to R_0 from R_1, which was the same as the initial level, although the output enhances from Y_1 to Y_2, this only exist in the short-run, and A is an unstable balanced spot, since output Y_2 has surpassed Y_0 (the output in full employment situation), it meant the social’s excessive demand and the limited resources, so the price level rises suddenly; the rise in price makes the actual value of the money supply reduce, then LM_1 returns to the LM_0, the interest rate rose to R_1, and the income falls to Y_1. That is account for the interest rate’s rising which lead to the reduction if folk invest and the squeezes out effect. This is the mid-term situation after the enlargement of the government’s expenditure scale of national debts and the increase of money supply on the base of sufficient employment. B still was the unstable balanced spot, because the income Y_1 has surpassed the income Y_0 in the full employment situation, and the price level could continue to rise, which would cause the actual value of the currency supplies further to reduce, then the LM curve could continue to shift to the left, transferred to the LM_2 continuously, only then the stable equilibrium could establish, in the new balanced spot C, the interest rate rises from initial r_0 to r_2, the income then returns to initial full employment level Y_0. This indicated that after the economy achieving the full employment situation, regardless of money supply increase or not, the government expenditure on national bond financing finally can lead to the interest rate enhances.

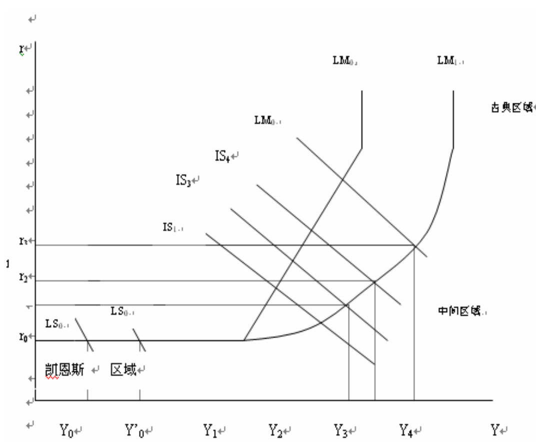

Fig.2 The interest rate effect of the national bond release and the money supply increase under the non-full employment environment

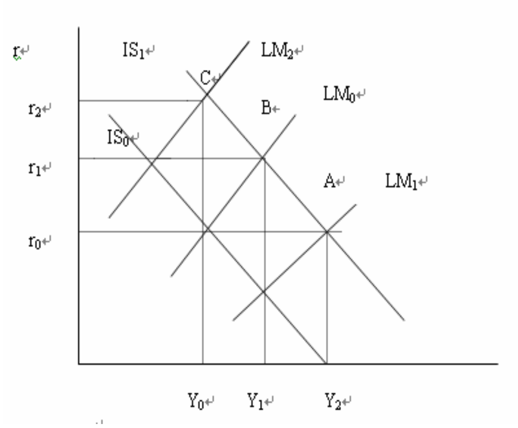

Fig.3 The interest rate effect of the national bond release and the money supply increase under the full employment environment

2.4 The inevitability of national bond interest rate effect

Through the Central Bank monetary policy and conduct mechanism, we can see the national bond market and its the interest rate level also has the unique effect. First, the scale of the national bond market is very large, it can satisfy the Central Bank's large-scale national bond business, without making the bond price fluctuate largely, also it cannot enlarge the Central Bank operation cost. Second, the Central Bank utilizes the bond business to open market service operation and adjust the negative of money supply. This method is more violent than the adjustment by using the legal reserve fund. Often it can influence the entire economy, while the bond open market service may carry on the multi- money supply operation, its influence upon the entire financial economy is very little. Moreover, the Central Bank reduces the money supply through the legal reserve fund, which forces the commercial bank to take back certain loans ahead of time. Specially these fund tense banks, the only way they supplement the reserve fund turn to the money market, but the cost is highly, so they possibly falls into the difficult condition; whereas buys and sells the national bond to adjust the money supply in the open market can make the commercial bank avoid this kind of situation occurred, because the commercial banks can rest on their own property debt situation to decide whether sells the national bond or not to optimizes its property combination. There, the Central Bank adjusting money supply through the bond open market operation have more initiative compared to the rediscount policy, loans and some other monetary policy. The Central Bank may buy and sell the national bond at anytime with any quantity according to the money supply situation, it can carry on the reversion purchase immediately when discovery operation fault. Central Bank is at the passive position when talk about the rediscounting, loans. Because it is rest on the commercial bank's behavior that whether it willing to do the discount or loan business with the Central Bank. If the commercial bank has other ways to raise the fund, besides rely on the rediscounting or loans, then the Central Bank cannot effectively control the money supply. Finally, the national bond market is the combining site of monetary policy and the financial policy, the finance department and the Central Bank coordinates mutually, may strengthen the macroeconomic regulation validity. When the finance department distributes the national bond, the Central Bank may make the money supply increase through purchasing the national bond, consequently avoids squeezes effect, which caused by the market rate's rising when the government expenditure increase in the national bond financing. Therefore, the national bond market very effective, Central Bank conducts the monetary policy here, and the national bond interest rate is the best market datum interest rate which the Central Bank formulates the interest rate policy can refer to.

3 The condition analysis about China national bond marketability reform and the datum interest rate's forming

Although the national bond interest rate effect is not remarkable during the transition period, through more than ten years national bond marketability reform, it is helpful to impetus interest rate marketability. The national bond interest rate meets the basic condition that the market datum interest rate required under the China market economy

First, the national bond's aftermarket formed and consummated gradually promoted the its returns ratios, impelled the reform of the interest rate marketability. It is the foundation for the interest rate marketability. The bank deposit interest rate's change should be the result of the change of the national bond interest rate. Because the issued quantity of 3-year and 5-year national bond's accounts for a big proportion in the total quantity released, besides the deposit interest rate that the Central Bank determined has a correspondence deadline, we selects 3 years and 5 years deposits interest rates as the analysis data. (See table1).

Table1. the comparison of National bond interest rate level and deposit interest rate level

The adjust time of Interest rate	Deposit interest rate (%)	Term limit(year)	The national bond's release time	National bond interest rate (%)	Term limit （year）
1990	11.52	5	1990	10.00	5
1991	9.00	5	1991	9.0	5
1996	9.00	5	1996	8.80	5
2001	2.88	5	2001	2.86	5
2002	2.52	3	2002	2.42	3
2002	2.52	3	2002	2.07	3
2002	2.52	3	2002	2.12	3
2002	2.79	3	2002	2.22	3
2002	2.79	5	2002	2.48	5
2002	2.79	5	2002	2.36	5
2002	2.79	5	2002	2.29	5
2002	2.79	5	2002	2.74	5
2003	2.79	5	2003	2.63	5
2004	3.60	5	2004	3.15	5

Material origin: 《Chinese Finance Yearbook》1990~2004

From table 1, we can find from 1990 to 2004, the releasing interest rate of national bond basically is lower than bank deposit's in the corresponding period. It is universal that the national bond interest rate is lower than the corresponding bank deposit interest rate in the country whose market economy developed well, because national bond has the certain inverse correlation. National bond has better the fluidity and security while its income is lower[4]. In addition the finally origin of the loans' cost is the national tax revenue, so in order to reduces central finance's burden, the national bond releasing interest rate cannot be high. One of the main superiorities of national bond is that it can be transacted and transferred. When the interest rate reduces, the bond price will rise, the investor who purchases the bond first has the opportunity to make profits; when interest rate rise, the bond price will drop, the investor who purchases the second-hand bonds has the chance to make money. Compare to the national bond, there are some risk to the deposit. Therefore, usually the releasing interest rate of national bond always is slightly lower than the bank deposit's. But the condition ofChina is not like this, Chinese inhabitant deposit is guaranteed by Chinese government, there are no differences between the national credit guarantee deposit and the national bond security, however because of the faultiness bond market, the ability of the national bond change is low, and the investor has few hype opportunity, which make its fluidity is worse than the deposit, therefore in order to attract the investor the national bond should combine with high income, But the statistical data indicated that the releasing interest rate of the national bond is lower than the bank deposit interest rate slightly. The main reason for it, on the one hand is the deposit interest assessment, after the assessment deposit income is lower than the national bond the income; On the other hand indicated Chinese national bond release interest rate moves towards maturely. Along with the market economy system's maturity, the release interest rate of the national bond already has the function of the datum interest rate.

Next, in 1996 the national bond released in the bid way, it is already achieved comprehensive marketability. (See Table2).

Table2. Comparative table of 3 years deposit interest rate and national bond release interest rate

Year	Deposit interest rate（%）	Term limit（year）	year	Interest rate of national bond（%）	Term limit（year）
1988	9.72	3	1988	10.00	3
1989	13.14	3	1989	14.00	3
1990	11.88	3	1990	14.00	3
1991	8.28	3	1991	10.00	3
1992	8.28	3	1992	9.50	3
1993	10.80	3	1993	13.96	3
1994	12.24	3	1994	13.96	3
1995	12.24	3	1995	14.50	3
1996	8.28	3	1996	10.96	3
1997	6.21	3	1997	9.18	3
1998	4.95	3	1998	7.11	3
1999	2.70	3	1999	3.02	3
2000	2.70	3	2000	2.89	3
2001	2.70	3	2001	2.51	3
2002	2.52	3	2002	2.22	3
2003	2.52	3	2003	2.32	3
2004	3.24	3	2004	2.4	3

Material origin: "Chinese Statistics Yearbook" 1988~2004 year

From table 2, we can find that the release interest rate of national bond can reflect the supply and demand condition reasonably, it has overcome shortcoming that through simply taking the bank deposit as the reference to decide the national bond's release interest rate . The interest rate of the national bond is determined by the market, and it is bidden publicly between Ministry of Finance and sailor. In that year, Ministry of Finance altogether distributed the national bond 220.6 billion Yuan. And 80% of the national bond that ever in the market were released its interest rate in the bid way. Because the price bidder choose is not only according to the market fund supply and demand, the capacity of itself, whether is selected and so on the many kinds of factors decision, this promoted the interest rate marketability advancement, also impelled the entire interest rate system marketability reform. The interest rate of national bond has already worked as the datum interest rate, it can be this displayed in the accurate forecast of the deposit interest rate’s change.

Third, the returned interest rate of the national bond has already become the real market rate, which impelled the marketability reform of interest rate system. The repurchase market of the national bond in Shanghai and the market inter-banks can have hundreds of million yuan’s transaction every day, it is a big market for the financial institution to transact with each other in China. In this market the returns ratio of the national bond that formed has already become the important referenced norm for the government finance macroeconomic regulation and control, and it have an impact on the limit of the on loan interest rate of the bank. It impelled the reform of bank system and the marketability reform of saves the loan interest rate objectively.

Fourth, the trading of national bond future experiment has provided a lesson both for Chinese bond market’s development and the reform of the interest rate’s marketability. Although it comes to an untimely end, because of the nonstandard operation of the national bond future and the lacking of a perfect surveillance mechanism and market foundation, it is a try any way. It provides us with a lesson as well as experiences to restore the market of national bond futures and make it become a mechanism for interest rate marketability. On June 15th, 2005, along with the implementation of "the Management Stipulation of Bond Forward in Inter-Bank Market" the financial ramification tool bond forward were promoted officially between the banks in China [5]. This provided a new and operable tool for the Central Bank to achieve an indirect regulation through the open market operation. As a management tool of the interest rate risk, there is a higher accuracy and timeliness by using the bond forward to do the risk management. The risk dodging investor can response quickly to the market price’s change, through the creditor's rights forward transaction they shift and assign the risk for these investors who has the ability and willing to undertake the risk. This will change the uneven situation of bond market, expanded bond demand, improve the bond’s fluidity and make the deadline structure of interest rate become reasonable.

Fifth, the national bond open market service operation has promoted the interest rate marketability advancement. April, 1996, Central Bank using the national bond open market service operation for the first time, they bought the bond in the way of counter repurchase. At that time, the national unification offered loan market has already formed and the bank loan interest rate scope expanded, especially the on loan interest rate existed in the folk. In the situation, Central Bank's bond open market service has an important effect on the interest rate level’s change.

Sixth, the born of the national bond’s prime interest rate make the interest rate marketability enter the sprint stage. In 2004 Ministry of Finance distributes the national bond with prime interest rate according to "the Announces about the Release Notice of National Bond with Prime Interest Rate in 2004", it symbolized the birth of national bond with prime interest rate, and this is of great importance to the forming of the integrated prime interest rate system and the establishment of continual national bond yield curve [6].

In 2004 national bond with the prime interest rate distributed altogether were 9 issues, and all were released cross the market, namely the inter-bank bond market and the exchange market distributed at the same time. It is called "the prime interest rate national bond" The reason is that this kind of national bond has realized the release regularization and the variety identical—or you can consider in this way, the release of the identical deadline national bond variety rolls regularly.

Establish an effective prime interest rate system is the indispensable foundation condition of our finance market interest rate’s marketability. Interest rate marketability advancement which is impelled by the Central Bank continuously, already entered "the sprint stage", moreover this advancement has obtained Ministry of Finance's support. It is a tentative plan Ministry of Finance explicitly proposed in the year of 2002 that enrich the prime national bond’s variety in the market, and then take this as the foundation to construct the national bond returns ratio curve. Such operation is advantageous to the interest rate signal conduct from the money market to the capital market. In 2004 there were 3 kinds of prime interest rate national bond contrast to only 1 kind before, and the release frequency increased to 9 issues from 4 issues, therefore, we might anticipate that in 2006 the release of prime interest rate national bond will account for about 60% of the whole year. At the same time, the proportion of the quantity issued in record-type national bond will be higher than before. As prime interest rate national bond, usually it needs better fluidity. In 2003 interest rate national bond of 7 years had been distributed for four issues, and the quantity of each issue is more than 35 billion Yuan, it is amount to 152 billion Yuan, which account for 40% in account type national bond release that year. Since December 2002, when the first prime interest rate national bond of 7 years was published cross the market, to 2003 year's end, it has totally released 212 billion Yuan by the end of 2003, and this occupied 14% in the total quantity of affiance in the bond market to be entrusted with about. The prime interest rate national debt already has had the positive influence to the bond market interest rate level. On the effect of arbitrage mechanism, the 7 years’ national bond’s interest rate level already the same between the inter-bank and national bond exchange market In 2005, the appearance of prime interest rates national bond with 2 years and 5 years terms make the interest rate of the national bond that less than 7 years time in the exchange and inter-bank become identical. The national bond become important regulative tool of the central bank, the proportion the national bond remaining accounts for in the financial property must be expanded from about 5% at present to 20%[7].

4 Conclusion and suggestion

At present the interest rate of the national bond in our country has gotten ready to be the datum interest rate in the market. But if the national bond interest rate want to be the prime interest rate, it has to build strong foundation condition in practice.

First, it has to perfect the first market of the national bond. Market the release interest rate, change the national bond interest rate mainly according to the bank deposit account interest rate.

Promote the national bond pre-release system while manage the balance of the national bond and release the short-term national bond, fully display the functions of the price discovery in the first market, perfect the function of the national bond prime returns ratio curve, display the function of the fixed price foundation in the entire money market. Second, promote the national bond innovation product gradualy, enhance the market fluidity of the national bond. The diversification of the national bond’s variety is an important way to strengthen the national bond’s fluidity, and it is also the premise to develop the national bond market. The tools which are from the bond have vital significance to dodge the market’s risk, the price discovered as well as enhance the market fluidity. At present our country's national bond includes the present ticket and repurchase, which is not good to enhance the national bond's market fluidity and display the national bond's function. Therefore, for China,it has the plan and the step to introduce the innovation product such as forward, swap and future trade based on the well develop of the national bond, and then it can fully display price discovery function, urge the national bond's return ratio truly become the prime interest rate of the entire money market system, enhance the market fluidity [8] .Third, expand the release scale of national bond, enlarge the transparency of the national bond release. Chinese national bond scale is small corresponding [9], reducing the national bond's release deadline suitably will receive two tangible effects: for one thing, it is helpful to reduce the release cost of the national bond, and ensure to issue each bond successfully; for another thing, if the balance of the national bond is the same, reducing the release deadline will enlarge the year release scale, and then enhance the fluidity of the national bond market. Therefore, announce the release scale and the detailed plan regularly, explore the scientific and reasonable rule of the release scale and time. The main body in the course of issue should consider the market cultivation and the establishment of the market price discovery mechanism, thus we could discover and form the goal of the national bond's prime rate. Finally, expand the main body of the first trader. According to the international experience, the outside market need to establish quote-driven system gradually, namely in order to flourish the market, part of organization quote price and trade, and solve the problem of seeking the opponent and decide the bargaining price.

Prevent the occurrence of such thing, which will not reflect the credit cost when the transaction variety and the market participant are different under different markets.

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