

Introduction to International Repo & Securities Lending 全球债券回购与借贷

ASIFMA, CDC, UBS, RBS

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SECTION 2 第二节

Practical Experiences in the US and Europe Market 美国与欧洲市场的实践经验

Brief History of Repo Markets

Began in the US markets, around for decades. By 80s, balance sheets of American securities firms had grown. Concerns about amount of unsecured financing.
80年代,美国证券公司资产快速增长,无担保融资逐渐不足。

During late 80s and early 90s, repos made their way to Europe and Asia.
80年末, 90年代初, 欧亚国家也开始用回购融资方法。

Repo as cheaper way of covering shorts and financing long inventory.
At first, mostly viewed as financing desk rather than repo desk.
回购为头寸短缺提供了便利条件,起初并非纯回购,而是作为一种融资手段。

1996 Gilt Repo 年英国国债回购

1995-1997 Yamaichi Securities “山一”证券公司

from 99% unsecured funding to 90-95% secured funding
由无担保融资占99%改为有担保融资占90-95%

2000-present: growth in Credit Repos “信用回购”产品

Triparty history 第三方托管历史

In 90s, Salomon Brothers testing more exotic forms of collateral

90年代, 所罗门兄弟公司开始用流动性低的证券为抵押品。

In 1992, first triparty trade outside the US

1992年, 在美国境外第一次成交。

US Past Market Crises and Experiences Gained

美国以往的市场危机和所得经验

Case 1: 1991 – Salomon Brothers and the 2-year US Treasury Note 1991年 – 《所罗门兄弟公司》2年期国债

◆ Instance 事由:

According to US Treasury auction rules, each house must not acquire more than 35% of a specific bond's issue amount.

根据国债拍卖条例，每家投资公司不准拥有超过该期国债发行额的35%。

Salomon illegally borrowed names of other houses to obtain 86.5% of the USD12bio issue.

《所罗门》非法借他人公司名义，标得该国债总发行额（120多亿美元）的86.5%

Needy borrowers in such market conditions could hardly borrow the issue, and had to pay a high price to borrow from Salomon.

需要借该券的投资者在市面上几乎完全借不到。惟有“高价”向《所罗门》商借。

US Past Market Crises and Experiences Gained 美国以往的市场危机和所得经验

Case 1: 1991 – Salomon Brothers and the 2-year US Treasury Note 1991年 – 《所罗门兄弟公司》2年期国债

◆ Lesson Learned 所得教训:

FED closely monitor repo rates of any bond and will not allow artificial manipulation. If required, FED will increase issue size (tap the issue), increasing the bond's supply.

联储局密切注意任何一期国债的回购利率，不容许“人为操纵”。若有需要，联储局会增加发行额，以增加该期国债的供应量。

那么“人为操纵”定义为何？

US Past Market Crises and Experiences Gained

美国以往的市场危机和所得经验

Case 2: Long Term Capital Management causes global financial turmoil 《长期资本管理公司》所引起的全球性的金融风暴

◆ Instance 事由:

In early 1998, the company's capital approximately was 4.7bio USD. From repos, IRS, futures, and options transactions, borrowed 90bio USD. 该公司98年初，资本额约有 47亿美元。以回购，利率掉期，期货，期权交易方式借款 900 亿美元。

At early September, since no way to sell or reduce assets and furthermore unable to pay more margin, bankruptcy was an unavoidable fact. Even more, signs that it will bring down global financial market / systems. 至9月初，既无法卖出或减低资产，更无法付出更多的保证金，破产已是不可避免的事实。更有迹象会拖垮全球金融系统。

Eventually, led by the FED, 14 international banks raised capital to rescue. 最后由联储局出面，14家国际性银行出资挽救。

US Past Market Crises and Experiences Gained 美国以往的市场危机和所得经验

Case 2: Long Term Capital Management causes global financial turmoil 《长期资本管理公司》所引起的全球性的金融风暴

◆ Lesson Learned 所得教训:

FED did not and does not intervene in individual financial crises. But if it endangers/jeopardizes the whole financial system, FED will not sit back watch.

一般情况下, 联储局避免干预个别金融机构的危机, 但若危及整个金融系统, 联储局将不会坐视不管.

US Past Market Crises and Experiences Gained

美国以往的市场危机和所得经验

Case 3: 2001's Sep11 Event Aftermath, 10yr bond (T 5% 8/2011)
2001年的 9-11 事件后, 十年期国债 (T 5% 2011年8日到期)

◆ Instance 事由:

On August 8, 2001, a total of 11bio of the CT10. After 9-11, market especially lacked that particular bond. FED tapped the issue twice. 2001年8月8日发行共110亿美元。9-11事件后，市面非常缺乏该券。联储局随后增加两次发行。

2001年10月4日: \$6bio USD (60亿美元)。

2001年11月7日: \$7bio USD (70亿美元)。

US Past Market Crises and Experiences Gained 美国以往的市场危机和所得经验

Case 3: 2001's Sep11 Event Aftermath, 10yr bond (T 5% 8/2011)
2001年的 9-11 事件后, 十年期国债 (T 5% 2001年8日到期)

◆ Lesson Learned 所得教训:

As much as possible, FED generally lets market forces resolve matters, but if market forces are unable, then the FED will aid in market liquidity.

联储局一般尽量让“市场力量”解决问题，但若“市场力量”无法解围，联储局一定会帮助市场的流动性。

US Past Market Crises and Experiences Gained 美国以往的市场危机和所得经验

Case 4: 10yr UST 3.625% 5/13 10年期国债 (T 3.625% 2013年5月到期)

◆ Instance 事由:

Issued in May 2003.
2003年5月发行。

Summer of 2003, T5/13 repo rate dropped to 0%, obviously lack of supply.
2003年夏，该券回购利率低至0%，显然非常缺货。

FED did not increase supply, and did not adopt any actions. The bond's repo rate continued to trade that low into the autumn, when it then recovered.

联储局没有增加发行额，也没有采取任何行动。该券的回购利率直至当年的秋天才恢复正常。

US Past Market Crises and Experiences Gained 美国以往的市场危机和所得经验

Case 4: 10yr UST 3.625% 5/13
10年期国债 (T 3.625% 2013年5月到期)

◆ Lesson Learned 所得教训:

Why did the FED stand and watch?
联储局为何袖手旁观？

Cost of fails?
失败的成本

US Past Market Crises and Experiences Gained 美国以往的市场危机和所得经验

Case 5: Orange County 加利福尼亚州橙县

◆ Instance 事由:

In early December 1994, California Orange County declared it had lost 1.6 billion USD, largest lost in history for municipality. Not long after, announced bankruptcy.

1994年12月初，加利福尼亚州的橙县地方政府，宣布政府的投资基金损失约16亿美元（合约人民币120亿元）。为史上地方政府损失的最大宗。随后不久，县政府宣告破产。

Funds came from Orange County and its nearby neighbors, school districts, and fund managers use of repo transactions. With leverage, used 7.5 billion USD to invest into 20.5 billion USD. Investments include structured interest-rate notes.

基金的资金来自橙县及附近地方政府，教育学区，基金管理人以回购交易，为杠杆作用，用资金\$75亿美元提升投资总额\$205亿。投资项目包括结构，利息衍生等票据。

US Past Market Crises and Experiences Gained 美国以往的市场危机和所得经验

Case 5: Orange County 加利福尼亚州橙县

Nature of the fund's investment was quite short-term, with low credit risk, however the interest-rate risk was often high.

基金性质虽属短期投资，低信用风险，但是利息风险却相当高。

At the start of February 1994, FED raised the FEDfunds rate a number of times to control / restrain the rate of economic growth to reduce the risk of trade inflation. Till December, Orange Country investment fund losses increased day by day. County could only announced bankruptcy.

1994年2月开始，联储局数度提高联邦基金利息，以抑制经济成长率，降低通货膨胀风险。至12月初，橙县投资基金因损失日增，县政府只得宣布破产。

US Past Market Crises and Experiences Gained 美国以往的市场危机和所得经验

Case 5: Orange County 加利福尼亚州橙县

◆ Lesson Learned 所得教训:

Although repo financing especially easy, but one should not hastily finance and should note matching duration of assets.
回购融资虽然容易，但是不可勿视融资与资产“期限”（Duration）配合。

Orange County Example 橙县的例子

Fund's portfolio amount 基金组合资金	\$75亿美元
Total investment amount 总投资额	\$205亿美元
Leverage 杠杆作用	2.73x (fold) 倍
Portfolio Duration 投资组合期限	2.7 年
1994年 Rate Increase 利率上升	约 3%
Portfolio loss 组合损失	\$16.5亿美元

US Past Market Crises and Experiences Gained 美国以往的市场危机和所得经验

Case 5: Orange County 加利福尼亚州橙县

◆ Lesson Learned 所得教训:

From cash lender's point of view, not sufficient to only protect original capital. When collateral value is declining, will the counterparty be able to meet margin calls?

从资金借出方 (融券方), 单靠保证金, 不足以保护本金。若抵押品价格下降时, 交易对手方有否能家出更多保证金 ?

Suitability 投资的适合性

Leverage 杠杆作用

Margining & Appropriate haircuts (static/dynamic?) 保证金与折扣

...seen it too in CGB repo

Recent huge HF closings, but no market contagion → collateral management and credit risk monitoring

US Past Market Crises and Experiences Gained 美国以往的市场危机和所得经验

Case 6: Drysdale 国债公司

◆ Instance 事由:

In May 1982, Drysdale went out of business. Before this, according to conventional practice, valuing bonds did not include the bonds' own accrued interest. Drysdale did not include accrued interest. When borrowing bond immediately after short-selling, because the bond's short-sell price calculation includes accrued interest, therefore borrowing&selling can introduce a large amount of cash, but also undertake a similarly severe interest risk.

1982年5月Drysdale国债公司倒闭。在此之前,根据回购惯例,计算证券价值时不算债券本身的应计利息(accrued interest)。Drysdale 在借入证券时不算应计利息,借入债券后随即卖空,因卖空时债券计价包括了应付利息,所以一借一卖可以同时套得大量现金但也承担了相当重的利息风险。

US Past Market Crises and Experiences Gained 美国以往的市场危机和所得经验

Case 6: Drysdale 国债公司

◆ Instance 事由:

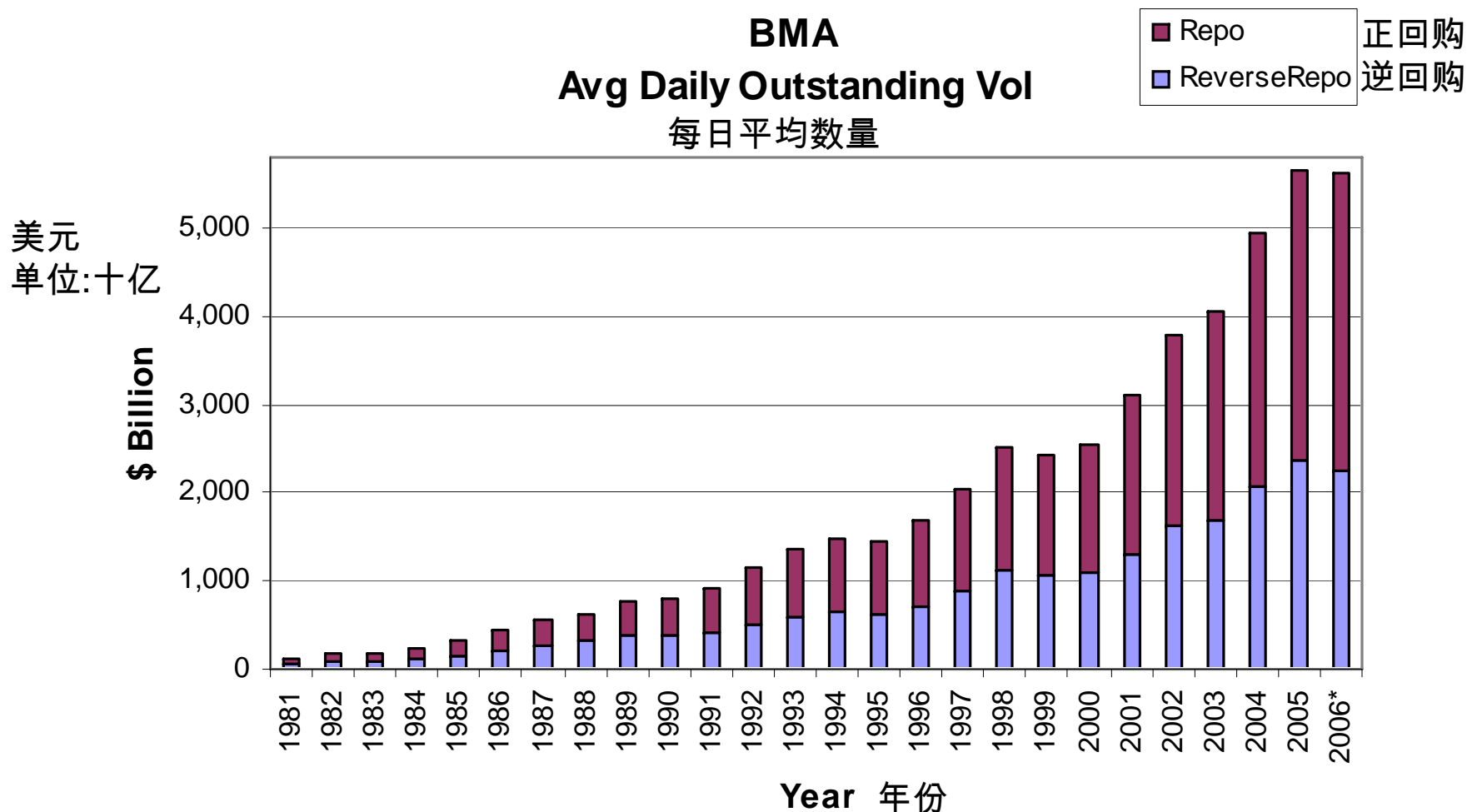
In 1982, interest rate started to drop, loss from short-selling increased daily until May 17, where with no additional cash, repay all of the owed interest amounts and announced bankruptcy.

1982年利率开始下降, 卖空债券损失日增, 直至82年5月17日, 再也没有多余资金偿还所欠利息而宣告破产。

◆ Lesson Learned 所得教训:

Bond valuation must include accrued interest.
债券估值一定包括债券应计利息。

Size of US Repo Market 美国回购市场的统计



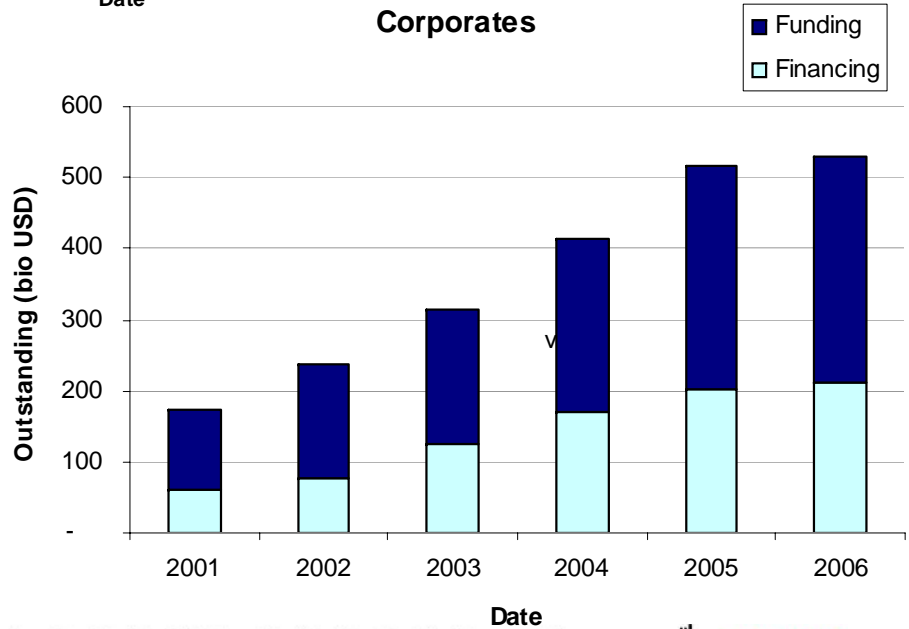
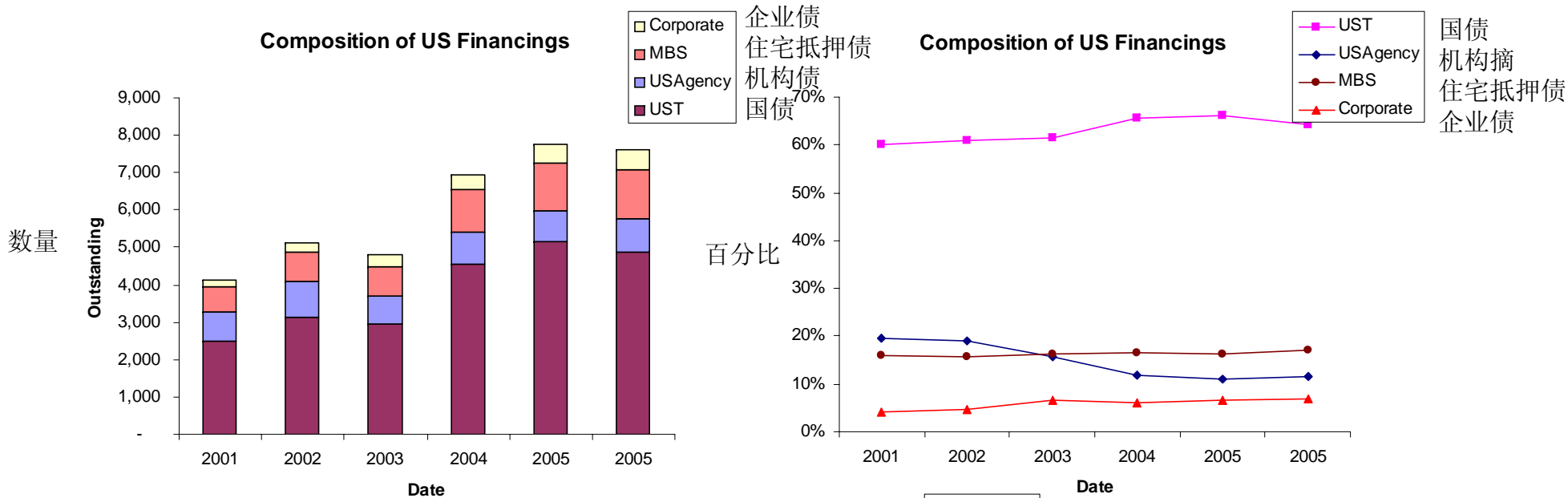
*As of September 30, 2006 - Beginning in July 2001 corporate securities are included.

从2001年7月开始，包括企业债

(1) Figures cover financing involving U.S. government, federal agency, and federal agency MBS securities.

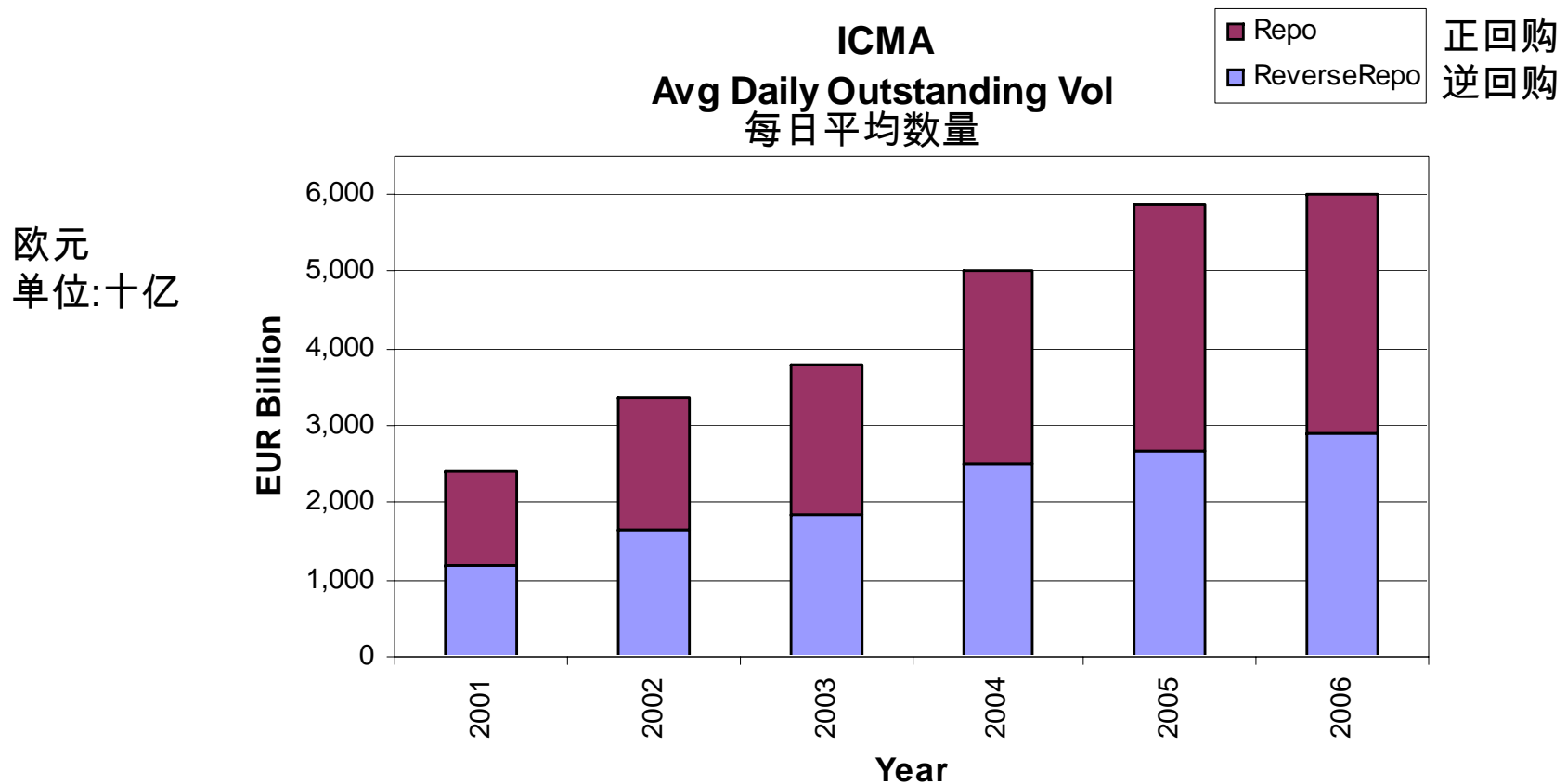
数字包括：国债，联邦机构，联邦机构的抵押债券

Breakdown of US Market 美国市场的分布



* Includes repos and other forms of securities Financing (FED data)

Size of European Repo Market 欧洲回购市场统计

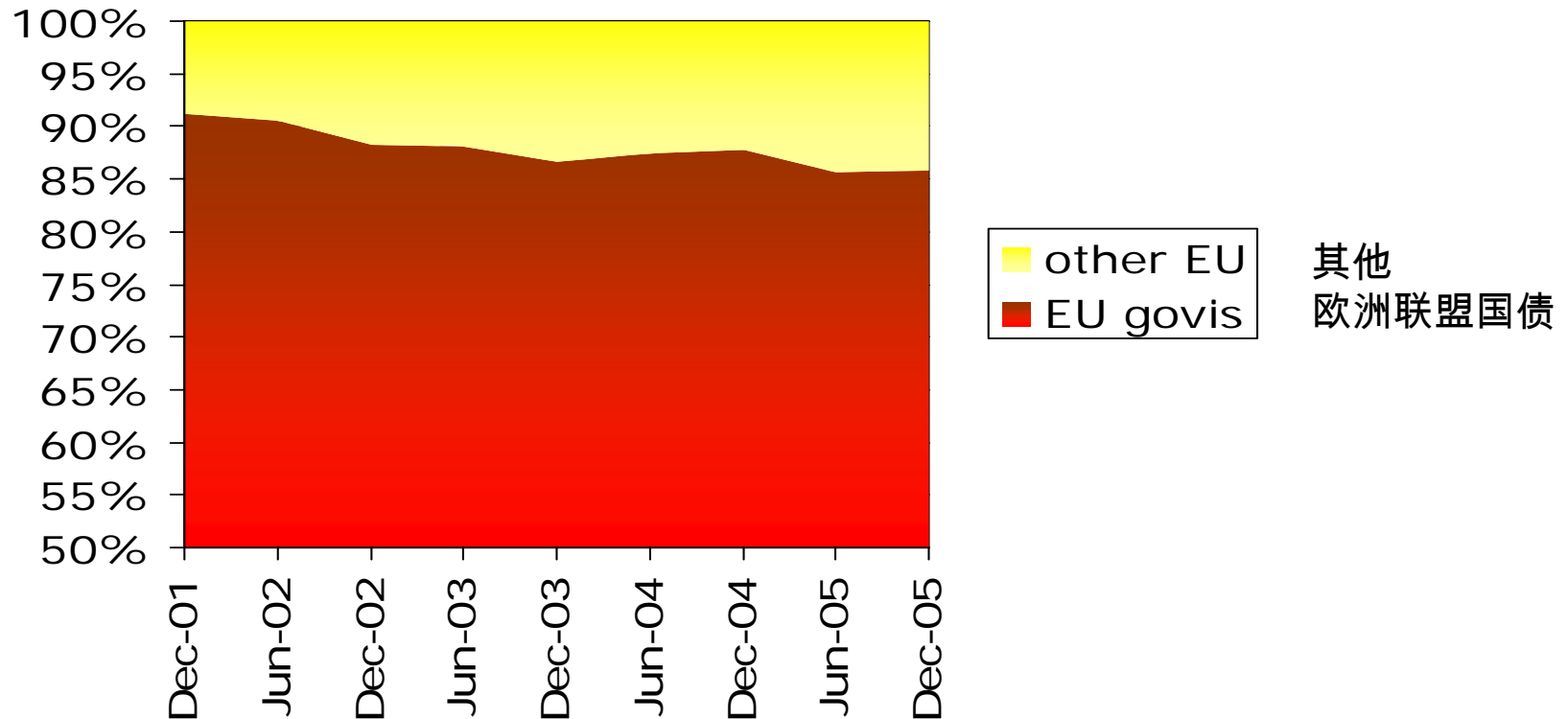


Reasons: benefits of secured lending, Basel II, triparty repo more assets such as corporate bonds/ABS/CDOs becoming financeable → Credit Repo

快速增加的原因: Basel II, 第三方托管回购, 融券方愿意接受国债以外的抵押品

Breakdown of Europe Market 欧洲回购市场的分布

Collateral analysis of European market 欧洲常用的抵押品



* From ICAP preso on ICMA european repo market survey

Characteristics of European Repo Market

欧洲回购市场特色

- ◆ Fewer specials.. Why?
“特殊”债券比较少见... 理由？
- ◆ Seems like easier to do cross-countries... settlement systems
跨国性的交易比较容易做成.. 结算系统..

Practical Market Considerations: Benefit to Cash Bond Mkts

回购交易对债券市场现金交易的帮助

- ◆ Repo market provides liquidity 回购提升市场的流动性
- ◆ Allow market participants to short bonds 容许市场参与者卖空债券
- ◆ Short-Selling 卖空

Why? 原因？

Should it be approved / regulated? 监管？

Equities vs Bonds short selling 卖空股票与债券的分别？

Benefits to govt bonds mkt, corporate bond markets..
对国债与企业债市场的帮助

Economics Behind Short-Selling

卖空交易的经济解释

- ◆ Market participants assign a fundamental value to every asset
市场投资者对各类资产的价值都会有自己的判断
- ◆ Basis trading and curve trades can also result in short positions
基差交易和收益率曲线交易都可导致空头寸
- ◆ Cases where relative value analysis involves short selling richer assets
基于相对价值分析，也可对那些“贵”资产进行卖空交易
- ◆ Potential rationale can relate to credit outlook of market participants
卖空交易的潜在原因也可能与市场参与者对于未来信用环境的看法有关
- ◆ Short selling ahead of increased supply due to tap or auction of similar asset
在由于类似债券的拍卖或随卖使得债券供给增加前进行卖空交易
- ◆ Hedging of new issues with benchmark bonds
用基准债券对新发债券对冲

Why Sell Short? (Fundamental Macro Shorts)

为什么要进行卖空? (基于宏观基本面)

- ◆ If market participant is convinced that an asset is over valued ie not trading where demand and supply determined price, he would sell the asset short
如果投资者确信某一资产被高估了，也就是说当前价格不是通过供求关系决定的水平，那么他会卖空该资产。
- ◆ “Fundamental macro-economic” short – sell an asset class
“基于宏观经济分析”的卖空 – 卖出一类资产
- ◆ Interest Rate view
基于对利率判断

Why Sell Short? (Auction and Tap Periods) 为什么要卖空? (招标及随卖式发行的过程)

- ◆ If demand remains stable and supply increases either in a particular issue due to tap in or due to auction of a similar asset, fundamentals state that the price of the bond will fall
如果由于某特定债券的随卖式发行或类似债的招标发行造成了该特定债券的供给增加而需求仍保持稳定,那么原理告诉我们该债券的价格会下降。
- ◆ This leads to increased short activity ahead of tap ins and auctions
这样,在发行前会出现对该债券的卖空行为。
- ◆ Many new issues are priced against a benchmark bond, so primary desks will short the benchmark to maintain the spread and take out interest rate exposure
许多新券会参考基准债进行定价,所以主力机构为维持利差可能会卖空基准债,以规避利率风险。
- ◆ For example large KFW issue might be hedged against a Bund, leading to increased repo activity in the Bund
举例来讲,持有大量的德国复兴信贷银行债可以用德国政府债进行对冲,导致基于德国政府债的回购交易。

Why Sell Short? (CTD)

为什么要卖空? (最便宜可交割债券)

- ◆ Where an investor views a bond futures contract to represent good value, they will often execute a basis transaction
如果投资者认为债券期货有利可图，那他经常会执行基差交易
- ◆ Simultaneous exchange of futures contracts vs bond of similar maturity.
Known as gross basis trading
同时将期货与期限相近的债券进行交换被称为全额基差交易
- ◆ Underlying cash sale requires financing and subsequent repo transaction
而基础券的现券交易需求融资进而需要回购交易
- ◆ Where gross basis and repo executed, this is known as net basis trade and prices are quoted in terms of number of cents/\$100
当全额基差交易和回购交易被执行时，即称为净额基差交易。该交易百元报价精确到分
- ◆ Assuming we understand the cash product and future converge to the same yield on expiration, the difference between the yield today and futures price today will create an implicit repo or financing cost.
假定现货与期货在到期日时有相同的受益率，那么当前 现货价格和期货价格之差则为隐含回购利率或融资成本。
- ◆ Known as the I.R.P: Implied Repo Price可称为 (I.R.P) 隐含的回购价格

BBG CTD Example

BBG 例子 (最便宜可交割债券)

GRAB Comdty DLV
Hit {NUMBER} <GO> to view Historical Basis/Repo
Cheapest to Deliver
EURO-BUND FUTURE Dec05 **RXZ5 122.78**

Trade 8/31/05 Div 12/12/05
Set 9/ 5/05 Cheapest IRP= 1.87

Order	DR	re-sort?	(Mid) Price	Source	Conv. Yield	C.Factor	DECIMAL Gross Basis	98 Days Act/360 Implied Repo%	Actual Repo%	DECIMAL Net Basis	
MASTER:											
1)	DBR	4 1/4	07/04/14	109.260	-.01	3.037	.885160	.580	1.87	2.00	.038
2)	DBR	3 3/4	01/04/15	105.360	-.01	3.078	.846069	1.480	-1.60	2.05	1.077
3)	DBR	3 1/4	07/04/15	101.080	-.01	3.119	.803899	2.377	-5.42	2.05	2.074

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Hong Kong 852 2977 6000 Japan 81 3 3201 8900 Singapore 65 6212 1000 U.S. 1 212 318 2000 Copyright 2005 Bloomberg L.P.
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BBG CTD Example

BBG 例子 (最便宜可交割债券)

GRAB Comdty DLV
Hit {NUMBER} <GO> to view Historical Basis/Repo
Cheapest to Deliver

EURO-SCHATZ FUT Sep05 **DUU5** 106.58+.005 Trade 8/31/05 Div 9/12/05
Set 9/ 5/05 Cheapest IRP= 2.33

Order	DR	re-sort?	(Mid) Price	Source	Conv. Yield	C.Factor	DECIMAL Gross Basis	? Days Act/360 Implied Repo%	DECIMAL Actual Repo%	DECIMAL Net Basis	
MASTER:											
1)	BKD	2	06/15/07	99.650	+.00	2.201	.935048	-.007	2.33	2.06	-.005
2)	DBR	6	07/04/07	106.720	BGN	2.203	.999731	.169	-2.56	2.06	.097
3)	OBL	4	1/2 07 #140	104.320	BGN	2.209	.973339	.582	-24.36	2.06	.537

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Hong Kong 852 2977 6000 Japan 81 3 3201 8900 Singapore 65 6212 1000 U.S. 1 212 318 2000 Copyright 2005 Bloomberg L.P.
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Why Sell Short? (Relative Value: Bond vs IRS)

为什么要卖空? (相对价值: 债券与利率互换)

- ◆ **Relative value trades between swaps/cash market**
在互换与现货市场之间进行相对价值交易
- ◆ **If a certain maturity appears to be rich in the cash market relative to the corresponding swaps rate, a common trade involves sale of the bond versus a long position in the swap**
如果对于某一期限品种，现货价格比对应的互换价格明显高，则可以进行对现货卖空，同时持有互换的多头
- ◆ **Shorts created in this type of trade would lead to short coverage of the relative value trade in the repo market**
此类型产生的空头可引致在回购市场上对空头进行回补
- ◆ **When a number of participants short the same bond, the repo market would see increased demand for this bond, and the bond would trade special**
当有许多投资者都对同一债券进行卖空时，在回购市场对于该债券的需求就会增加，进行产生了对该债券进行特殊券交易的需求
- ◆ **Cash shorts used by swaps desks in order to hedge their interest rate exposure**
互换交易者对冲他们的利率风险也会对现货进行卖空。

Why Sell Short? (US vs Europe Specials Comparison) 为什么要卖空? (美国与欧洲特殊券交易的比较)

US 美国

- ◆ US benchmarks 10year liquidity-Indexed funds
美国基准 10年期 高流动性指数化基金
- ◆ Use of the cash market to hedge interest rate exposure more prevalent in the US partly due to the presence of players like Freddie Mac and Fannie Mae – Convexity
用现货市场对冲利率风险的方法在美国更加流行，部分原因是联邦家庭抵押贷款公司 (Freddie Mac)和联邦全国房贷协会 (Fannie Mae)这类参与者一考虑凸性

EUROPE 欧洲

- ◆ Euro (12 cash bond markets) different levels of liquidity
欧洲 (12个现货市场) 流动性有高有低
- ◆ Futures used as hedge
主要以期货进行对冲
- ◆ Credit Spread trade: buying or selling issues of the Euro members versus each other eg. Supply, political, budget
信用/利差交易 –由于供给、政治、预算等原因对欧洲不同国家债券进行买卖

Why Sell Short? (Credit Reasons) 为什么要卖空? (信用方面原因)

- ◆ **Mkt players shorting sovereign/corporate issues if those credit quality likely to fall**
如果投资者预期某主权债或企业债的信用级别会下降，则会对这些特定债券进行卖空
- ◆ **Shorts in the cash mkt leading to a greater demand in the repo market as participants would seek to buy bonds in repo to short**
在现货市场对某一债券进行卖空会导致在回购市场对该债券更多的需求，因为投资者需要通过回购买入债券来做空
- ◆ **The specific credit trades special in repo mkt, while cash mkt have a negative outlook**
这样会导致在回购市场对特定信用级别债券的特殊券交易，而在现货市场对该债券并不看好
- ◆ **Added dimension due to the recent growth in credit derivative products**
最近信用衍生品市场的发展又为该种交易增加了广度
- ◆ **Credit Default Swaps (CDS) spreads as indicators of expectations of future credit quality**
信用违约互换(CDS)的点差可用于对未来信用质量进行预测的指标
- ◆ **Widening CDS/benchmark spreads lead to increased short selling activity**
信用违约互换的点差的扩大会增加对相应债券做空

Why Sell Short? (Credit Reasons) 为什么要卖空? (信用方面原因)

- ◆ This increased short selling results in the issue trading special in the repo market eg GM
卖空交易的增加又会导致回购市场上的特殊券交易，例如通用公司债券
- ◆ An interesting feature of the short selling prevalent through the derivatives market is that due to the cash settled nature of deliveries the total notional amount of outstanding shorts can exceed the issued notional amount of capital in the underlying issue.
通过衍生品市场进行的卖空交易有一个有趣的特征，即由于现金交割的特性，做空的名义总头寸有可能会超出对应债券的名义发行量

Other Factors & Key Issues for Specials' Traders

其它因素 – 特殊券交易员的决定因素

- ◆ **Small issue size might lead to bond trading special because free float is limited**
较小的发行量会导致特殊券交易的发生，因为其浮筹有限
- ◆ **If supply is concentrated with one holder, leading to a squeeze situation**
如果某债券的持有人集中于一人，会导致逼空
- ◆ **If a lot of the issue is held by holder who cannot lend the bond or will not lend it till it trades at a certain spread to GC**
如果持有大量某债券的投资者不能出借该债券或只有在比一般抵押券价格高的情况下才能出借，也会导致特殊券交易
- ◆ **Some bonds might trade special because of coupon or cash/carry type reasons**
一些债券由于息票、持有方式(cash、carry type)等原因也可能会导致特殊券交易
- ◆ **For instance institutions might want to own bonds that trade below par, leading to capital gain on redemption**
例如，投资者可能希望能持有贴价的债券，可以在赎回时实现资本利得

Why Cover Short Positions? 对什么要对冲空头头寸?

- ◆ Short position needs to be covered to ensure delivery is made and no fail or buy in costs are incurred
为保证结算、防止违约或补偿性购买损失的发生，需要对冲空头头寸
- ◆ Repo market exists to provide liquidity and cheaper alternative to auto borrow facility within ICSD's
回购市场提供了流动性，而且能以较低的成本替代通过国际证券托管机构ICSD进行的自动借贷机制
- ◆ Short may be covered for term so that funding costs may be determined
对空头头寸的对冲可以锁定融资成本

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