

# Hong Kong Dollar Yield Curve

Interest Rate Committee  
Actuarial Society of Hong Kong  
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# Hong Kong Dollar Debt Market

- Mostly Exchange Fund Bills and Notes issued by HKMA - now used by professionals looking for the benchmark of Hong Kong dollar risk free rates
- Other issuers – small

Dramatic changes  
over the last decade regarding  
both demand and supply of  
Hong Kong dollar debts

# Demand side

- Return of Hong Kong to China in 1997
- Introduction of MPF
- Abolition of estate duty on HK\$ life insurance policies
- Valuation of liabilities in future may require discounting using spot rates rather than average rates
- Speculation of unpeg of HK\$ from US\$ (see, for example, 6/15/2005 issue of The Standard)
- Unpeg of RMB from US\$ in July 2005 heightened the speculation of HK\$ unpeg
- Possible abolition of estate duty in Hong Kong may bring more money back to Hong Kong

# Supply side

- Exchange fund bills increases from \$1 billion in March 1990 to \$70 billion in September 2005.
- Exchange fund notes increase from \$0.6 billion in June 1993 to \$55 billion in September 2005. (still small as compared to Hong Kong's GDP of 1,300 billion)

# Secondary Market HKMA fixings

- 12 banks designated as market makers
- Daily fixing at 11 a.m. using the average of the middle 8 quotes
- Information available on website

# A sample page from website

## EXCHANGE FUND BILLS AND NOTES OFFICIAL FIXINGS

As at 11:00 am 21 April 2004

EXCHANGE FUND BILLS			EXCHANGE FUND NOTES			
TERM	ISSUE	YIELD	TERM	ISSUE	YIELD	PRICE
1W	Q404	0.00	2 YR	2602	1.372	99.59
1M	Q408	0.02	3 YR	5703	2.159	108.45
3M	Q416	0.09	4 YR	5803	2.751	100.91
6M	H462	0.26	5 YR	5903	3.169	97.17
9M	Y485	0.46	7 YR	7102	3.744	97.35
12M	Y488	0.66	10 YR	1312	4.254	100.85

*Fixings powered by Reuters*

# Basic data (detailed quotes)

B	C	D	E	F	G	H	I
2	<b>HONG KONG MONETARY AUTHORITY</b>						
3	<b>EXCHANGE FUND BILLS AND NOTES</b>						
4	<b>REFERENCE PRICES AND YIELDS FOR EXCHANGE FUND NOTES</b>						
5							
6	<b>As at 11:00 am 21 April 2004</b>						
7							
8	<b>EXCHANGE FUND NOTES</b>				<i>Data powered by Reuters</i>		
9	<b>ISSUE</b>	<b>M A T U R I T Y</b>	<b>C O U P O N</b>	<b>Y I E L D</b>	<b>P R I C E</b>		
10	<b>N O .</b>	<b>(D D / M M / Y Y)</b>	<b>(% )</b>	<b>(% )</b>			
11	3 4 0 4	2 3 / 0 4 / 0 4	4.97	0.000	100.02		
12	2 4 0 5	1 3 / 0 5 / 0 4	3.30	0.010	100.20		
13	7 4 0 5	2 7 / 0 5 / 0 4	6.94	0.020	100.69		
14	3 4 0 7	2 3 / 0 7 / 0 4	4.74	0.094	101.19		
15	2 4 0 8	1 2 / 0 8 / 0 4	2.20	0.135	100.64		
16	7 4 0 8	2 6 / 0 8 / 0 4	7.00	0.163	102.39		
17	5 4 0 9	2 7 / 0 9 / 0 4	6.80	0.228	102.83		
18	3 4 1 0	2 6 / 1 0 / 0 4	3.52	0.289	101.65		
19	2 4 1 1	1 5 / 1 1 / 0 4	2.12	0.333	101.01		
20	7 4 1 1	2 5 / 1 1 / 0 4	7.80	0.355	104.42		
21	5 4 1 2	2 0 / 1 2 / 0 4	6.71	0.409	104.17		
22	3 5 0 1	2 5 / 0 1 / 0 5	3.78	0.491	102.50		
23	2 5 0 2	1 4 / 0 2 / 0 5	1.90	0.539	101.11		
24	7 5 0 2	2 4 / 0 2 / 0 5	9.20	0.562	107.26		
25	5 5 0 3	2 1 / 0 3 / 0 5	6.93	0.622	105.75		
26	3 5 0 4	2 5 / 0 4 / 0 5	4.31	0.703	103.62		
27	2 5 0 5	1 6 / 0 5 / 0 5	1.61	0.751	100.91		
28	7 5 0 5	2 6 / 0 5 / 0 5	8.65	0.774	108.59		
29	5 5 0 6	1 3 / 0 6 / 0 5	6.93	0.815	106.94		
30	3 5 0 7	2 5 / 0 7 / 0 5	3.20	0.910	102.87		
31	2 5 0 8	1 5 / 0 8 / 0 5	1.68	0.958	100.95		
32	7 5 0 8	2 5 / 0 8 / 0 5	9.58	0.981	111.48		
33	5 5 0 9	1 9 / 0 9 / 0 5	6.54	1.038	107.67		
34	2 5 1 1	1 4 / 1 1 / 0 5	1.47	1.165	100.47		
35	5 5 1 2	1 9 / 1 2 / 0 5	6.03	1.245	107.84		
36	2 6 0 2	1 3 / 0 2 / 0 6	1.14	1.372	99.59		

# Data from the fixings not suitable for professional use

- The fixing data (as published in SCMP) are approximate only
- The 2-year note shows a yield of 1.372%
- But it is not a true 2-year note. It matures in less than 22 months.
- It is not a zero-coupon bond and therefore does not give a true 2-year spot rate.

ASHK formed a committee two years ago to work out the spot rates from the basic data

Using discount factor as the medium:  
more smooth and easier to work with  
than yield-to-maturity or spot rates

Using bootstrapping method to work  
from a duration of 1-week to a  
duration of 10-year, the maximum  
available now for Hong Kong  
Exchange Fund Notes

Using cubic-spline method to  
interpolate for intermediate results  
(some extrapolation under extreme  
circumstances)

Using Excel together with VBA for  
easier communication and  
distribution

# A sample output page



## Actuaries' Spot Rates for Hong Kong

Date of Data 21-Apr-2004 (Wednesday)

### Effective Annual Spot Rates - Week of 19-Apr-2004

Term	Spot Rate (Annualized)
1 Week	0.00%
1 Month	0.01%
2 Months	0.05%
3 Months	0.09%
6 Months	0.28%
9 Months	0.48%
1.0 Year	0.70%
1.5 Years	1.11%
2.0 Years	1.53%
2.5 Years	1.92%
3.0 Years	2.29%
3.5 Years	2.60%
4.0 Years	2.92%
4.5 Years	3.12%
5.0 Years	3.28%
5.5 Years	3.45%
6.0 Years	3.58%
6.5 Years	3.76%
7.0 Years	3.92%
7.5 Years	4.07%
8.0 Years	4.16%
8.5 Years	4.23%
9.0 Years	4.29%
9.5 Years	4.41%
10.0 Years	4.54%

The above data are provided by the Actuarial Society of Hong Kong (ASHK) based on the information available from HKMA website. They are provided here strictly for general reference only. ASHK assumes no responsibilities or liabilities for the use of such data by anybody."

# Committee Members

- Peter Luk
- Wai-Sum Chan
- Robert Chen
- Simon Cheung
- Albert Wong
- Victor Wong
- Steve Zhang

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# Demonstration of Excel software