

## Fair value and spot converge over time, E&OE.

For this example we bought in beginning of Aug-2013, with next close-out 19-Sep-2013

Buy a contract of any underlying share, at R100 spot price, and we have two examples:

- 1 Assume the spot price moves up and down until closeout [real-world]
- 2 Assume the spot price stays flat until closeout [unlikely, but shows the convergence]

19-Sep-13			Example 1: Variable spot price					Example 2: Fixed spot price				
Date	t	r	Spot	F	FV	Pct	Match	Spot	F	FV	Pct	
01-Aug-13	49	10%	100.00	1.34	101.34	1.3%	TRUE	100.00	1.34	101.34	1.3%	
02-Aug-13	48	10%	100.15	1.32	101.47	1.3%	FALSE	100.00	1.32	101.32	1.3%	
03-Aug-13	47	10%	102.08	1.31	103.39	1.3%	TRUE	100.00	1.29	101.29	1.3%	
04-Aug-13	46	10%	103.16	1.30	104.46	1.3%	TRUE	100.00	1.26	101.26	1.3%	
05-Aug-13	45	10%	103.57	1.28	104.85	1.2%	TRUE	100.00	1.23	101.23	1.2%	
06-Aug-13	44	10%	105.79	1.28	107.06	1.2%	TRUE	100.00	1.21	101.21	1.2%	
07-Aug-13	43	10%	105.33	1.24	106.57	1.2%	TRUE	100.00	1.18	101.18	1.2%	
08-Aug-13	42	10%	104.37	1.20	105.57	1.2%	TRUE	100.00	1.15	101.15	1.2%	
09-Aug-13	41	10%	103.52	1.16	104.68	1.1%	TRUE	100.00	1.12	101.12	1.1%	
10-Aug-13	40	10%	104.98	1.15	106.13	1.1%	TRUE	100.00	1.10	101.10	1.1%	
11-Aug-13	39	10%	107.45	1.15	108.60	1.1%	TRUE	100.00	1.07	101.07	1.1%	
12-Aug-13	38	10%	109.80	1.14	110.94	1.0%	TRUE	100.00	1.04	101.04	1.0%	
13-Aug-13	37	10%	112.22	1.14	113.36	1.0%	TRUE	100.00	1.01	101.01	1.0%	
14-Aug-13	36	10%	113.73	1.12	114.86	1.0%	TRUE	100.00	0.99	100.99	1.0%	
15-Aug-13	35	10%	115.93	1.11	117.04	1.0%	TRUE	100.00	0.96	100.96	1.0%	
16-Aug-13	34	10%	115.99	1.08	117.07	0.9%	FALSE	100.00	0.93	100.93	0.9%	
17-Aug-13	33	10%	115.93	1.05	116.97	0.9%	TRUE	100.00	0.90	100.90	0.9%	
18-Aug-13	32	10%	113.65	1.00	114.65	0.9%	TRUE	100.00	0.88	100.88	0.9%	
19-Aug-13	31	10%	111.35	0.95	112.29	0.8%	TRUE	100.00	0.85	100.85	0.8%	
20-Aug-13	30	10%	109.59	0.90	110.49	0.8%	TRUE	100.00	0.82	100.82	0.8%	
21-Aug-13	29	10%	108.85	0.86	109.72	0.8%	FALSE	100.00	0.79	100.79	0.8%	
22-Aug-13	28	10%	106.76	0.82	107.58	0.8%	TRUE	100.00	0.77	100.77	0.8%	
23-Aug-13	27	10%	104.68	0.77	105.45	0.7%	TRUE	100.00	0.74	100.74	0.7%	
24-Aug-13	26	10%	103.57	0.74	104.30	0.7%	TRUE	100.00	0.71	100.71	0.7%	
25-Aug-13	25	10%	102.99	0.71	103.70	0.7%	TRUE	100.00	0.68	100.68	0.7%	
26-Aug-13	24	10%	101.65	0.67	102.32	0.7%	FALSE	100.00	0.66	100.66	0.7%	
27-Aug-13	23	10%	103.77	0.65	104.43	0.6%	TRUE	100.00	0.63	100.63	0.6%	
28-Aug-13	22	10%	105.60	0.64	106.23	0.6%	TRUE	100.00	0.60	100.60	0.6%	
29-Aug-13	21	10%	107.05	0.62	107.67	0.6%	TRUE	100.00	0.58	100.58	0.6%	
30-Aug-13	20	10%	109.51	0.60	110.11	0.5%	TRUE	100.00	0.55	100.55	0.5%	
31-Aug-13	19	10%	108.02	0.56	108.58	0.5%	FALSE	100.00	0.52	100.52	0.5%	
01-Sep-13	18	10%	106.72	0.53	107.25	0.5%	TRUE	100.00	0.49	100.49	0.5%	
02-Sep-13	17	10%	105.07	0.49	105.56	0.5%	TRUE	100.00	0.47	100.47	0.5%	
03-Sep-13	16	10%	105.87	0.46	106.34	0.4%	TRUE	100.00	0.44	100.44	0.4%	
04-Sep-13	15	10%	106.56	0.44	107.00	0.4%	TRUE	100.00	0.41	100.41	0.4%	
05-Sep-13	14	10%	106.63	0.41	107.04	0.4%	TRUE	100.00	0.38	100.38	0.4%	
06-Sep-13	13	10%	108.97	0.39	109.36	0.4%	TRUE	100.00	0.36	100.36	0.4%	
07-Sep-13	12	10%	109.79	0.36	110.15	0.3%	TRUE	100.00	0.33	100.33	0.3%	
08-Sep-13	11	10%	111.55	0.34	111.89	0.3%	TRUE	100.00	0.30	100.30	0.3%	
09-Sep-13	10	10%	113.20	0.31	113.51	0.3%	TRUE	100.00	0.27	100.27	0.3%	
10-Sep-13	9	10%	112.66	0.28	112.93	0.2%	TRUE	100.00	0.25	100.25	0.2%	
11-Sep-13	8	10%	110.58	0.24	110.83	0.2%	TRUE	100.00	0.22	100.22	0.2%	
12-Sep-13	7	10%	108.95	0.21	109.16	0.2%	TRUE	100.00	0.19	100.19	0.2%	
13-Sep-13	6	10%	108.46	0.18	108.63	0.2%	TRUE	100.00	0.16	100.16	0.2%	
14-Sep-13	5	10%	109.23	0.15	109.38	0.1%	TRUE	100.00	0.14	100.14	0.1%	
15-Sep-13	4	10%	111.00	0.12	111.12	0.1%	TRUE	100.00	0.11	100.11	0.1%	
16-Sep-13	3	10%	113.28	0.09	113.37	0.1%	TRUE	100.00	0.08	100.08	0.1%	
17-Sep-13	2	10%	114.00	0.06	114.07	0.1%	TRUE	100.00	0.05	100.05	0.1%	
18-Sep-13	1	10%	114.46	0.03	114.49	0.0%	TRUE	100.00	0.03	100.03	0.0%	
19-Sep-13	0	10%	115.77	-	115.77	0.0%	TRUE	100.00	-	100.00	0.0%	

### The financing component alone

$$F = [C][r][t/365]$$

C = spot price, R100 here, variable/fixed

r = annual borrowing rate, say 10% here

t = time, nr of days till expiry

### Determine Fair Value Futures price

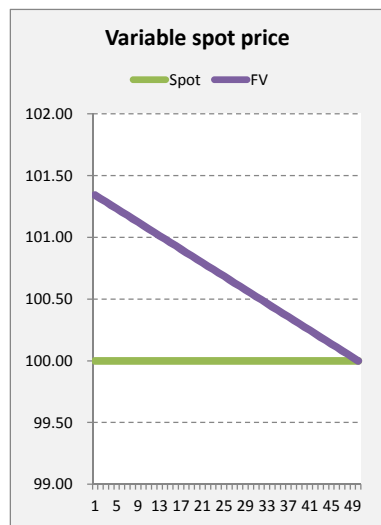
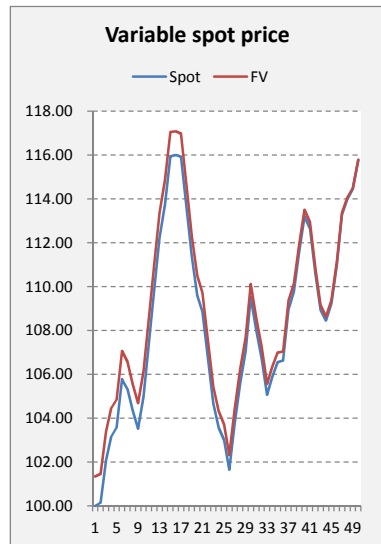
$$FV = C + F - D$$

C = spot price, R100 here

F = interest component, below

D = dividends components, assume none\*

\*To illustrate financing component alone



Disclaimer: This publication has been issued by Courtney Capital. It is confidential and issued for the information of clients only. It shall not be reproduced in whole or in part without our permission. The information contained herein has been obtained from sources which and persons whom we believe to be reliable but is not guaranteed for accuracy, completeness or otherwise. All opinions expressed and recommendations made are subject to change without notice. No information contained herein, no opinion expressed and no recommendation made constitutes a representation by us or a solicitation for the purchase or sale of any of the securities mentioned herein and we have no responsibility whatsoever arising here from or in consequence hereof. Derivatives trading may not be advisable for you and that you must discuss the risks in Derivatives trading with your portfolio manager before trading. You are to consider the recommendations taking into account your risk profile and financial ability to trade in Derivatives instruments. We shall not be liable in the event of you failing to receive any communication from us by means of any medium be it an SMS service, e-mail, website notification or telephone call.