# APPENDIX

# A Preliminary Analysis of the 2001 Mega-Swap

In this appendix, we present a preliminary analysis of the mega-swap of June 2001. The analysis is preliminary in the sense that it only uses publicly available information on individual bond issues, as obtained from Bloomberg, and may not fully take account of possible intricacies and peculiarities of some specific bond issues. The analysis, however, uses latest data, as made available from the Argentine Ministry of Economy and Production, and utilizes more frequent compounding and more detailed assumptions about future floating coupons than those employed by the IMF's internal assessment of the swap in 2001.<sup>1</sup>

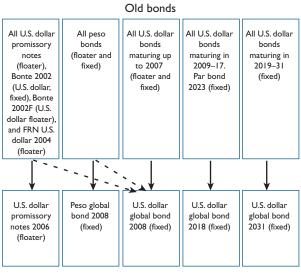
The 2001 mega-swap was exercised on a market basis through an auction. The Argentine government started the auction on May 24 and concluded it on June 1. The auction result was announced on June 3, and the bonds were swapped on June 19. The swap was aimed at reducing payment obligations, particularly during 2001-05, by interest capitalizations and duration extensions. The government offered five new bonds in exchange for 52 eligible bonds. Both the new bonds and old bonds had varied structures. The swap was designed strictly in accordance with the government's guidelines, as outlined in Figure A7.1. For example, long-term bonds were swapped with long-term bonds. Fixed-coupon bonds were in principle swapped with fixed bonds. U.S. dollar-denominated bonds were only allowed to be swapped with U.S. dollar-denominated bonds. By this structure, the swap increased the amount of fixed-coupon bonds, dollar-denominated bonds, and long-term bonds.

The swap achieved the government's objectives. As Table A7.1 indicates, the (weighted) maturity of bonds was extended by 3.73 years and the (weighted) coupon raised by 1.11 percentage points,<sup>2</sup> while the (unweighted) discount rate over face value increased by 2.3 percentage points (for details, see Table A7.2). The payment obligation in 2001–05 was significantly

reduced; particularly for 2001–02, the new bonds had no principal payment obligations. The payment obligations after 2006, however, increased substantially. In total, the stock of debt increased by \$907 million in face value. Because the swap was marketbased, the market values of the old bonds and the new bonds were the same (\$23.2 billion), meaning that the government bought back \$29.5 billion of old bonds and sold \$30.4 billion of new bonds, both at \$23.2 billion.

In order to see the full impact of the swap, one would need to think in terms of net present value (NPV). One's assessment of the actual costs and benefits from the swap would depend on one's assessment of what constitutes a normal interest rate for Argentina. As stated in the text, an important lesson of the Argentine crisis is that market-based and voluntary financial engineering operations, such as

#### Figure A7.1. Exchange Options



New bonds

Sources: IMF documents; and Argentina, Ministry of Economy and Production.

<sup>&</sup>lt;sup>1</sup>"Argentina—An Assessment of the Debt Exchange Operation," SM/01/204, July 2001.

<sup>&</sup>lt;sup>2</sup>These are weighted by face value.

# Table A7.1. An Overview of the Mega-Swap

# **Basic Comparison**

	New	Old	Difference	
Face value (in millions of U.S. dollars) Of which	30,401	29,494	907	
Fixed	28,371	20,312	8,059	
(Percent of total)	93	69	24	
Years to maturity (in years from 6/19/01) Of which	16	12	4	
Fixed	17	16	1	
Coupon (fixed bonds, percent) <sup>1</sup>	12	10		
Premium/discount (in percent)	-24	-21	-3	

<sup>1</sup>Weighted by face value.

## Present Values in June 2001

(In millions of U.S. dollars, unless otherwise indicated)

	Interest F	ayments	Principal F	Payments	Inte	Interest + Principal		
count Rate Used	New	Old	New	Old	New	Old	New – Old	
14.22 percent (6/1/01) Of which	15,797	13,588	8,667	11,825	24,464	25,413	-949	
Fixed (Percent of total)	15,059 95.3	12,190 89.7	7,278 84.0	4,858 41.1	22,337 91.3	17,048 67.1	5,289	
10.75 percent (12/31/99) Of which	20,921	16,037	11,434	13,443	32,355	29,480	2,875	
Fixed (Percent of total)	20,130 96.2	14,527 90.6	9,878 86.4	6,107 45.4	30,008 92.7	20,634 70.0	9,374	
I I.92 percent (12/29/00) Of which	18,945	15,114	10,360	12,826	29,305	27,940	1,365	
Fixed (Percent of total)	18,172 95.9	13,645 90.3	8,864 85.6	5,621 43.8	27,036 92.3	19,266 69.0	7,770	
19.64 percent (9/28/01) Of which	10,940	11,043	6,052	10,181	16,992	21,224	-4,232	
Fixed (Percent of total)	10,272 93.9	9,772 88.5	4,878 80.6	3,695 36.3	15,150 89.2	13,467 63.5	1,683	

## **Accumulated Payment**

(In millions of U.S. dollars, unless otherwise indicated)

	Interest F	ayments	Principal F	Payments	Inte	rest + Prir	ncipal
	New	Old	New	Old	New	Old	New – Old
Jun/01–Dec/02	1,604	4,210	0	5,551	1,604	9,761	8,157
Of which							
Fixed	1,343	3,303	0	525	1,343	3,828	-2,485
(Percent of total)	84	78		9	84	39	
Jan/03–Dec/05	3,395	6,352	1,894	6,156	5,289	12,508	-7,219
Of which							
Fixed	2,685	5,773	0	2,952	2,685	8,725	-6,040
(Percent of total)	79	91		48	51	70	
Jan/06–Dec/10	17,362	7,855	12,766	3,106	30,128	10,961	19,167
Of which							
Fixed	17,331	7,621	12,387	2,705	29,718	10,326	19,392
(Percent of total)	100	97	97	87	99	94	
Jan/I Ì—	48,306	16,911	28,783	14,681	77,089	31,592	45,497
Of which							
Fixed	48,306	16,411	28,783	14,130	77,089	30,541	46,548
(Percent of total)	100	97	100	96	100	97	

Note: For U.S. dollar LIBOR-linked floaters, the coupon rate is set equal to the U.S. dollar LIBOR forward rate. For Argentine domestic interest-rate-linked floaters except for FRAN 2004 and FRAN 2005, the coupon rate is set equal to the U.S. dollar LIBOR plus the spread between the U.S. dollar LIBOR and the benchmark interest rate on 6/19/01. For FRAN 2004 and FRAN 2005, the coupon rate is the last coupon rate before 6/19/01. EMBI Global Argentina stripped yields are used as discount rates. Interest capitalization is included in the principal payment. These estimates do not consider the call schedule (even when bonds are callable), the released collateral, or the accrued interest (in the case of Brady bonds).

PP 2006         Pagnes         USD         E+580         12          6//92001         6//92006         5/0         7         Y         2.030 <th2.030< th=""> <th2.030< th=""> <th2.030< th="" th<=""><th>Name</th><th>Security Type</th><th>Currency</th><th>Currency Coupon</th><th>ls Coupon Frequency</th><th>lssue Amount (In millions of U.S. dollars)</th><th>it Issue Date</th><th>Final Maturity Date</th><th>Years to Maturity at Issue Date</th><th>Years to Maturity at 6/19/2001</th><th>Sinkable</th><th>) Floater</th><th>Exchange Exchange Face Value Amount (In millions at of U.S. Market dollars) Price</th><th>Exchange Amount at Market Price</th><th>Premium (+) Discount (-) (In percent)</th><th>Received Offer (In millions)</th></th2.030<></th2.030<></th2.030<>	Name	Security Type	Currency	Currency Coupon	ls Coupon Frequency	lssue Amount (In millions of U.S. dollars)	it Issue Date	Final Maturity Date	Years to Maturity at Issue Date	Years to Maturity at 6/19/2001	Sinkable	) Floater	Exchange Exchange Face Value Amount (In millions at of U.S. Market dollars) Price	Exchange Amount at Market Price	Premium (+) Discount (-) (In percent)	Received Offer (In millions)
Global         ARS         [0/12         2          6/19/2008         7.3         7.3         N         931           Bocones         USD          12         298.69         12/21/992         12/22/2008         6.0         7.5         7         7         26.8           Bocones         MSS          12         2,996.9         12/21/992         9/1/2002         10.0         1.2         7         7         7         26.8           Bocones         MSS          12         2,914.9         9/1/1991         4/1/2007         16.0         5.5         7         7         7         24.29           Bocones         USD         2.00         12         2,141.8         4/1/1991         4/1/2007         16.0         5.5         7         7         7         7         24.29           Bocones         USD         2.00         12         2,122.00         9/15/2007         16.0         5.5         7         7         7         24.29         9/14         26.0         13.1         26.0         13.1         26.0         13.1         26.0         13.1         26.0         13.1         26.0         26.0         26.0	ច្ ច ច ច ខ		a a a a a a a a a a a a a a a a a a a	E+580 7/15.5 12.25 12.00		::::	6/19/2001 6/19/2001 6/19/2001 6/19/2001	6/19/2006 12/19/2008 6/19/2018 6/19/2031	5.0 7.5 17.0 30.0	5.0 7.5 17.0 30.0	≻≻≻z	≻zzz	2,030 11,456 7,463 8,521	2,030 8,999 5,467 6,024	0.0 -21.7 -21.4 -26.8	::::
Bocorres         USD          12         298.69         122/1992         122/1002         16.0         7.5         Y         Y         Y         130.7           Bocorres         ARS          12         3,16,1.9         9/1/1992         9/1/1992         9/1/1992         9/1/1991         1/1/2002         100         1.2         Y         Y         Y         134.6           Bocorres         ARS          12         2,412.8         4/1/1991         4/1/2007         16.0         5.8         Y         Y         Y         134.6           Bocorres         USD         2.00         12         2,412.8         4/1/1991         4/1/2007         16.0         5.8         Y         Y         Y         242.9           Bocorres         USD         2.00         12         2,512.00         1/15/1999         4/15/2007         8.3         5.8         Y         Y         Y         Y         242.9           Bocres         USD         11.75         2         2,500.0         1/15/1999         4/15/2007         8.3         5.8         Y         Y         Y         Y         242.9           Borres         USD         11.75	o GL so 08	Global	ARS	10/12	7	:	6/19/2001	9/19/2008	7.3	7.3	z	z	931 30,401	729 23,249	-29.3 -23.5	:
Bocones         ARS          12         1,973.4         9/1/1992         9/1/2002         10.0         1.2         Y         Y         130.7           Bocones         USD         2.00         12         3,461.9         9/1/1991         4/1/2007         16.0         5.8         Y         Y         134.6           Bocones         USD         2.00         12         3,461.9         9/1/1991         4/1/2007         16.0         5.8         Y         Y         Y         134.6           Bocones         USD         2.00         12         2,412.8         4/1/1991         4/1/2007         16.0         5.8         Y         Y         Y         14.46           Bocones         USD         2.00         12         2,412.8         4/1/1991         4/1/2007         16.0         5.8         Y         Y         Y         7         242.9           Bocones         USD         1.120.4         1/15/1994         4/15/2007         8.3         5.8         Y         Y         Y         7         242.9           Bornes         USD         1.1.75         2         2,59/1997         5/9/12002         5.0         0.9         7         Y	0	Bocones	USD	:	12	2,986.9	12/2/1992	12/2/2008	16.0	7.5	≻	≻	26.8	19.5	-27.2	46
Bocones         USD         200         12         3,161,9         9/11/932         9/12002         10.0         12         Y         N         54.6           Bocones         ARS          12         3,161,9         9/11/932         9/12007         16.0         58         Y         Y         N         54.6           Bocones         ARS          12         2,4128         4/11/991         4/12007         16.0         58         Y         Y         Y         14,245.3           Bocones         ARS          12         2,4128         4/11/991         4/12007         16.0         58         Y	\$	Bocones	ARS	:	12	1,973.4	9/1/1992	9/1/2002	10.0	1.2	≻	≻	130.7	48. I	-63.2	131
Bocones         ARS         Tit	USD ♦	Bocones	USD AR S	2.00	12	3,161.9 7,694.4	9/1/1992 4/1/1991	9/1/2002 4/1/2007	10.0	1.2 8 R	≻ ≻	z≻	54.6 1 476 3	21.6 8173	-60.4 -42 7	304 1545
Bocones         ARS          12         5.6         12/28/2010         16.0         9.5         Y         Y         0.9           Bocones         ARS          12         5.6         12/28/1994         12/28/2010         16.0         9.5         Y         Y         N         81.4           Bocones         ARS          2,5000         9/15/1999         4/15/2007         83         5.8         Y         N         131.1           Bornes         USD          2         2,5000         9/15/1999         4/15/2007         83         5.8         Y         N         131.1           Bornes         USD         11/175         2         2,6002         5/9/1997         5/9/12003         5.0         9         N         N         131.1           Bornes         USD         11/175         2         2,6092         2/2/12003         5.0         2         19         N         N         248.4           Bornes         USD         11/175         2         2,6092         2/2/12003         5/0         9         N         N         13         13         11         13         13         13         13	, NSD	Bocones	USD USD	2.00	12	2,412.8	4/1/1991	4/1/2007	16.0	5.8	- >-	· ≻	242.9	144.5	-40.5	254
Bocones         USD         2.00         12         915.2         12/28/1994         12/28/2010         16.0         9.5         Y         N         81.4           Bocones         ARS          4         455.0         1/15/1999         4/15/2007         83.3         5.8         Y         N         N         12.12.3           Bocones         USD          4         455.0         1/15/1992         9/15/2007         8.3         5.8         Y         N         N         12.13.13           Bontes         USD          4         1,078.3         5/9/1997         5/9/1000         5/21         0.09         N         N         248.4           Bontes         USD          4         1,078.3         5/9/1997         5/9/1000         5/21/2003         5.0         0.9         N         N         248.4           Bontes         USD         1.1.75         2         2,2807         5/21/2006         5/12/2003         5.0         2.9         N         N         272.1           Bontes         USD         1.1.75         2         2,2608.1         2/21/2006         5/12/2007         5.0         2.9         N         N	Ś	Bocones	ARS	:	12	5.6	12/28/1994	12/28/2010	16.0	9.5	≻	≻	0.9	0.6	-33.3	_
Decones         Ars.         Th.	USD *	Bocones		2.00	12	915.2	12/28/1994	12/28/2010	16.0 C 0	9.5	≻ >	z>	81.4	70.4	-13.5	79 201
Bonex         USD          2         2,500.0         9/15/1992         9/15/2002         10.0         1.2         Y         Y         404.4           Bontes         USD         11.75         2         2,682.6         5/9/1997         5/9/2002         5.0         0.9         N         N         248.4           Bontes         USD         11.75         2         2,682.6         5/9/1997         5/9/2002         5.0         0.9         N         N         248.4           Bontes         USD         11.25         2         2,897.8         5/24/1999         5/21/2003         3.3         1.9         N         N         248.3           Bontes         USD         11.75         2         2,897.8         5/24/1999         5/21/2006         5.1         N         N         N         748.3         332.4           Bontes         USD         11.75         2         2,608.1         2/12/12000         5/21/2007         5.0         2.9         N         N         N         1,134.1         1         1,134.1         1         1,134.1         1         1,134.1         1         1,134.1         1         1,134.1         1,1134.1         1,1072.005         5.1	USD	Bocones	AKS USD	2.00	4 4	455.0 1,120.4	1/15/1999	4/15/2007 4/15/2007	α. 	0.0 8.0 8.0	≻ ≻	≻z	126.3 131.1	/8.3 93.4	38.0 28.8	193 160
Bontes         USD         8.75         2         2,682.6         5/9/1997         5/9/2002         5.0         0.9         N         N         248.4           Bontes         USD         11.75         2         2,882.7         2/2/1/2000         5/2/1/2003         3.3         1.9         N         N         248.4           Bontes         USD         11.75         2         2,897.8         5/2/1/2003         5/21/2003         5/21         N         N         N         748.3           Bontes         USD         11.75         2         2,8997.8         5/21/2005         5/21/2005         5/3         3/9         N         N         N         987.7           Bontes         USD         11.75         2         2,608.1         2/2/1/2005         5/51/2005	sx 92	Bonex	USD	:	2	2,500.0	9/15/1992	9/15/2002	10.0	1.2	≻	≻	404.4	95.0	-76.5	423
F         Bontes         USD         11.75         2         2.82.07         2.2/1/2003         5/1/2003         3.3         1.9         N         N         5.3.2.6           Bontes         USD         11.75         2         2,897.8         5/2/1/2003         5.0         2.1         N         Y         485.3           Bontes         USD         11.75         2         2,609.7         5/2/1/2005         5.3         3.9         N         N         Y         485.3           Bontes         USD         11.75         2         2,609.1         2/2/1/2005         5.3         3.9         N         N         N         113.4         1           Bontes         USD         11.75         2         2,609.1         2/2/1/2005         5.3         3.9         N         N         N         113.4         1           Bontes         USD         9.94         2         1,127.4         10/23/1999         9/19/2027         28.9         2.6.3         N         N         N         1731.9         1         7.7.1         1.751.9         1         7.751.9         1         7.751.9         1         7.7.1         1.751.9         1         7.7.1         2.7.1	e 02	Bontes		8.75	5	2,682.6	5/9/1997	5/9/2002	5.0	0.9	Z	Z	248.4	238.4	4.0	311
Γ         Bontes         USD         USD </td <td>e 03</td> <td></td> <td>OSU 1</td> <td>11.75</td> <td>4</td> <td>2,820.7</td> <td>2/21/2000</td> <td>5/21/2003</td> <td>с. г о. г</td> <td>6.1</td> <td>zz</td> <td>z&gt;</td> <td>532.6</td> <td>512.3</td> <td>1 .00 </td> <td>615</td>	e 03		OSU 1	11.75	4	2,820.7	2/21/2000	5/21/2003	с. г о. г	6.1	zz	z>	532.6	512.3	1 .00 	615
Bontes         USD         12.13         2         2,609.2         22/1/2006         5.3         3.9         N         N         I,113.4           Bontes         USD         11.75         2         2,609.1         2/21/2005         5.3         3.9         N         N         1,135.19           Bontes         USD         11.75         2         2,608.1         2/21/2001         5/15/2006         5.2         4.9         N         N         1,751.9           Bontes         USD         9.94         2         1,127.4         10/23/1998         9/19/2027         28.9         26.3         N         N         N         1,751.9           Eurobonds         ARS         11.75         2         500.0         2/12/1997         2/12/2007         10.0         7.0         3.8         7         7         7.44.5           FRAN         USD          2         1,000.0         3/15/1999         4/10/2005         7.0         3.8         7         7         5.44.5           FRAN         USD          2         3,000.0         3/15/1999         4/10/2005         7.0         3.8         7         7         1714.6           FRAN	е 03 г е 04				4 0	1,078.3 2,897.8	//21/1998 5/24/1999	7/21/2003 5/24/2004	5.0 0.2	2.9	zz	≻z	485.3 987.7	6.764 910.6	/.c- 8.7-	48/ 1.104
Bontes         USD         II.75         2         2.608.1         2/21/2001         5/15/2006         5.2         4.9         N         N         I,751.9           Bontes         USD         11.75         2         2.608.1         2/21/2001         5/15/2006         5.2         4.9         N         N         1,751.9           Bontes         USD         974         2         1,127.4         10/23/1998         9/19/2027         28.9         26.3         N         N         972.1           Eurobonds         ARS         11.75         2         500.0         2/1/2/1997         7/10/2002         5.0         1.1         N         N         77.2           FRAN         USD          2         1,000.0         3/27/1998         4/10/2005         1.1         N         Y         544.5           FRAN         USD          4         300.0         3/15/1999         4/10/2005         1.1.4         38         Y         Y         7714.6           FRAN         USD         2.06         2         4,135.9         4/10/2005         1.1.4         38         Y         Y         7714.6           FRAN         USD         2.06	e 05	Bontes	USD	12.13	2	2,609.2	2/21/2000	5/21/2005	5.3	3.9	z	z	1,113.4	1,013.1	-9.0	1,270
Bontes         USD         9.94         2         1,127.4         10/23/1998         9/19/2027         28.9         26.3         N         N         972.1           Eurobonds         ARS         8.75         2         500.0         7/10/1997         7/10/2002         5.0         1.1         N         N         972.1           Eurobonds         ARS         8.75         2         500.0         7/10/1997         7/10/2002         5.0         1.1         N         N         772           Eurobonds         ARS         11.75         2         500.0         3/15/1999         4/10/2005         7.0         3.8         N         Y         544.5           FRAN         USD         2.01         21/2/1993         3/15/1999         4/10/2005         1.0         Y         7         544.5           FRAN         USD         2.00         2         8,466.5         11/5/1993         3/19/2003         10.0         2.8         N         Y         Y         1,714.6           FRB         USD         1.0         2         4,10/2005         10.0         2.1         2.9         7.0         3.8         Y         Y         7         1,714.6         69.1         <	te 06	Bontes	USD	11.75	2	2,608.1	2/21/2001	5/15/2006	5.2	4.9	z	z	1,751.9	1,515.4	-13.5	I ,868
Eurobonds         ARS         8.75         2         500.0         7/10/1997         7/10/2002         5.0         1.1         N         N         157.2           Eurobonds         ARS         11.75         2         500.0         2/12/1997         2/12/2007         10.0         5.6         N         N         7544.5           FRAN         USD          2         1,000.0         3/15/1999         4/10/2005         5.6         N         N         Y         544.5           FRAN         USD          2         1,000.0         3/15/1999         4/10/2005         1.0         3.8         Y         Y         544.5           FRAN         USD          2         1,000.0         3/15/1999         4/10/2005         1.0         3.8         Y         Y         544.5           FRAN         USD          2         8,466.5         11/5/1993         3/29/2005         11.4         3.8         Y         Y         7         1/14.6           Global         USD         11.00         2         1,307.0003         10.0         2.8         N         Y         7         8.4           Global         USD	te 27	Bontes		9.94	2	1,127.4	10/23/1998	9/19/2027	28.9	26.3	z	z	972.1	678.1	-30.2	974
Eurobonds         ARS         II.75         2         500.0         2/12/1997         2/12/207         I0.0         5.6         N         N         N         323.4           FRAN         USD          2         1,000.0         3/27/1998         4/10/2005         7.0         5.6         N         N         Y         544.5           FRAN         USD          2         1,000.0         3/15/1999         4/10/2005         7.0         3.8         N         Y         544.5           FRAN         USD          2         8,00.0         3/15/1999         4/10/2005         1.1         3.8         Y         Y         544.5           FRAN         USD         2.00         2         8,15/51993         3/29/2005         11.4         3.8         Y         Y         Y         17/14.6           Global         USD         11.00         2         1,300.0         12/4/1998         12/4/2005         7.0         4.5         N         Y         Y         4.6           Global         USD         11.00         2         1,300.0         10/9/12005         10.0         5.3         N         N         46.4	\$ 02	Eurobond		8.75	7	500.0	7/10/1997	7/10/2002	5.0	- 1	Z	Z	157.2	147.3	-6.3	181
FRAN         USD          2         1,000.0         3/27/1998         4/10/2005         7.0         3.8         N         Y         544.5           04         FRAN         USD          4         300.0         3/15/1999         4/10/2005         7.0         3.8         N         Y         7         69.1           FRB         USD         2.00         2         8,46.5         11/5/1993         3/29/2005         11.4         3.8         Y         Y         7         69.1           Global         USD         2.06         2         4,135.9         4/7/1993         3/29/2003         10.0         2.1         8         N         Y         Y         7         6.1           Global         USD         1.00         2         1,312.023         10.0         2.5         N         N         Y         550.8           Global         USD         11.00         2         1,300.0         12/4/1098         12/4/2005         7.0         4.5         N         N         46.4           Global         USD         11.00         2         1,300.0         10/9/1996         10/9/2006         10.0         5.3         N         N<	\$ 07	Eurobond	-	11.75	7	500.0	2/12/1997	2/12/2007	10.0	5.6	Z	z	323.4	265.2	-18.0	380
04         FRAN         USD         USD         USD         V         4         300.0         3/15/1999         4/6/2004         5.1         2.8         N         Y         69.1           FRB         USD         2.00         2         8,466.5         11/5/1993         3/29/2005         11.4         3.8         Y         Y         Y         1714.6           Global         USD         2.06         2         4,135.9         4/711993         3/31/2023         30.0         21.8         N         Y         550.8           Global         USD         11.00         2         1,317.923         30.0         21.8         N         N         Y         550.8           Global         USD         11.00         2         1,300.0         12/4/1998         12/4/2005         7.0         4.5         N         N         7.6.4.4           Global         USD         11.00         2         1,300.0         10/9/1966         10/9/2006         10.0         5.3         N         N         7.6.4.4           Global         USD         11.75         2         1,500.0         3/15/2010         10.0         7.8         N         N         7.8	Z	FRAN	USD	÷	7	1,000.0	3/27/1998	4/10/2005	7.0	3.8	Z	≻ :	544.5	506.4	-7.0	756
FRB         USD         2.00         2         8,46.6.5         11/5/1993         3/29/2005         11.4         3.8         Y         Y         1,714,6           Global         USD         2.06         2         4,135.9         4/7/1993         3/31/2023         30.0         21.8         N         Y         550.8           Global         USD         2.06         2         4,135.9         4/7/1993         3/31/2023         30.0         21.8         N         Y         550.8           Global         USD         11.00         2         1,000.0         12/4/1998         12/4/2005         7.0         4.5         N         N         46.4           Global         USD         11.00         2         1,000.0         12/4/1998         12/4/2005         7.0         4.5         N         N         76.4           Global         USD         11.00         2         1,000.0         12/4/1999         4/7/2009         10.0         5.3         N         N         77.8           Global         USD         11.38         2         1,090.0         3/15/2010         10.0         7.8         N         N         77.8           Global         USD	12004	FRAN	USD	:	4	300.0	3/15/1999	4/6/2004	5.1	2.8	Z	≻	69. I	62.2	-10.0	190
Global         USD         2.06         2         4,135.9         4/7/1993         3/31/2023         30.0         21.8         N         Y         550.8           Global         USD         8.38         2         2,050.0         12/20/1993         12/20/2003         10.0         2.5         N         N         N         46.4           Global         USD         11.00         2         1,000.0         12/4/1998         12/4/2005         7.0         4.5         N         N         46.4           Global         USD         11.00         2         1,000.0         12/4/1998         12/4/2005         7.0         4.5         N         N         46.4           Global         USD         11.75         2         1,500.0         4/7/1999         4/77/2009         10.0         7.8         N         N         77.8           Global         USD         11.38         2         1,000.0         3/15/2010         3/15/2010         10.0         8.7         N         N         139.9	s	FRB	USD	2.00	7	8,466.5	11/5/1993	3/29/2005	4. 11	3.8	≻	≻	1,714.6	971.1	-43.4	2,071
Global         USD         8.38         2         2,050.0         12/20/1993         12/20/2003         10.0         2.5         N         N         181.1           Global         USD         11.00         2         1,000.0         12/4/1998         12/4/2005         7.0         4.5         N         N         46.4           Global         USD         11.00         2         1,300.0         10/9/1996         10/9/2006         10.0         5.3         N         N         77.8           Global         USD         11.75         2         1,500.0         4/7/1999         4/7/2009         10.0         7.8         N         N         336.6           Global         USD         11.38         2         1,000.0         3/15/2010         3/15/2010         10.0         8.7         N         N         139.9		Global	USD	2.06	2	4,135.9	4/7/1993	3/31/2023	30.0	21.8	z	≻	550.8	418.6	-24.0	568
Global USD II.00 2 I,000.0 I2/4/1998 I2/4/2005 7.0 4.5 N N 46.4 Global USD II.00 2 I,300.0 I0/9/1996 I0/9/2006 I0.0 5.3 N N 77.8 Global USD II.75 2 I,500.0 4/7/1999 4/7/2009 I0.0 7.8 N N 336.6 Global USD II.38 2 I,000.0 3/15/2000 3/15/2010 I0.0 8.7 N N I39.9	33	Global	USD	8.38	2	2,050.0	12/20/1993	12/20/2003	0.01	2.5	z	z	181.1	I 60.3	-11.5	183
Global USD II.00 2 I.300.0 10/9/1996 10/9/2006 10.0 5.3 N N 77.8 Global USD II.75 2 I.500.0 4/7/1999 4/7/2009 10.0 7.8 N N 336.6 Global USD II.38 2 I.000.0 3/15/2000 3/15/2010 10.0 8.7 N N 139.9	5	Global	USD	11.00	2	1,000.0	12/4/1998	12/4/2005	7.0	4.5	z	z	46.4	40.9	-11.9	77
USD II.75 2 I,500.0 4/7/1999 4/7/2009 I0.0 7.8 N N 336.6 USD II.38 2 I,000.0 3/15/2000 3/15/2010 I0.0 8.7 N N 139.9	9	Global	USD	11.00	2	1,300.0	9661/6/01	1 0/9/2006	0.01	5.3	z	z	77.8	66.5	-14.5	16
I USD II.38 2 I,000.0 3/15/2000 3/15/2010 10.0 8.7 N N 139.9	60	Global	USD	11.75	2	1,500.0	4/7/1999	4/7/2009	10.0	7.8	z	z	336.6	270.9	-19.5	433
	0	Global	USD	11.38	2	1,000.0	3/15/2000	3/15/2010	10.0	8.7	Z	Z	139.9	110.2	-21.2	216

Table A7.2. Details of Old and New Bonds

753	1,918	2,170	1,306	1,105	2,683	1,116	1,175	1,973	343	359	128	1,193	S	23	1,084	528	28		
-18.0	-20.7	-21.0	-18.0	-18.5	-30.3	-29.5	-19.0	-30.5	-2.8	-I.6	4.7	I.3	-I.0	0.0	4.	2.1	-2.2	-21.2	
565.0	I, I 88.6	1,646.3	1,030.8	889.9	1,774.3	711.7	939.4	1,267.2	217.4	304.0	96.7	1,208.3	20.0	0.6	1,098.9	538.4	18.0	3,249.2	
689.0	1,499.8	2,084.0	1,257.0	1,091.9	2,543.8	1,009.5	1,159.8	1,823.4	223.6	308.8	101.5	1,193.0	20.2	0.6	1,083.8	527.5	18.4	29,493.8 23,249.2	
z	z	z	z	z	z	z	z	z	≻	≻	≻	≻	≻	≻	≻	≻	z		
z	z	z	z	z	z	z	z	z	z	z	z	z	z	z	z	z	z		
10.7	14.0	15.6	17.7	18.6	26.3	29.1	29.6	21.8	1.2	0.8	2.7	4.1	0.4	0.1	0.4	0.1	4.		
0.11	15.0	20.0	20.0	20.0	30.0	30.0	30.0	30.0	2.0	2.0	3.0	2.0	2.0	2.0	2.0	2.0	5.0		
2/21/2012	6/15/2015	1/30/2017	2/25/2019	2/1/2020	9/19/2027	7/21/2030	1/31/2031	3/31/2023	8/22/2002	4/24/2002	2/16/2004	10/30/2002	11/2/2001	7/14/2001	11/2/2001	7/14/2001	11/30/2002		
2/21/2001	6/15/2000	1/30/1997	2/25/1999	2/3/2000	2661/61/6	7/21/2000	1/31/2001	4/7/1993	8/22/2000	4/24/2000	2/16/2001	10/30/2000	11/2/1999	7/14/1999	11/2/1999	7/14/1999	12/16/1997		
I,594.0	2,402.7	4,575.0	I,433.5	1,250.0	3,435.I	1,250.0	1,175.0	12,489.0	400.0	400.0	150.0	1,200.0	1,184.8	111.5	21.5	820.2	500.0	95,194	
2	7	7	7	7	7	7	7	7	12	12	12	12	12	12	12	12	5		
12.38	11.75	11.38	12.13	12.00	9.75	10.25	12.00	6.00	E+330	E+400	E+435	E+580	B+410	B+500	E+521	E+600	0.00		
USD	USD	USD	USD	USD	USD	USD	USD	USD	USD	USD	USD	USD	USD	USD	USD	USD	USD		
Global	Global	Global	Global	Global	Global	Global	Global	Global	Pagares	Pagares	Pagares	Pagares	Pagares	Pagares	Pagares	Pagares	Span		
GL 12	GL 15	GL 17	GL 19	GL 20	GL 27	GL 30	GL 31	Par	BP E+330	BP E+400	BP E+435	BP E+580	BP B+410	BP B+500	BP E+52 I	BP E+600	SPAN 02	Total	
PIO	PIO	PIO	PIO	PIO	PIO	PIO	PIO	PIO	PIO	PIO	PIO	PIO	PIO	PIO	PIO	PIO	PIO	PIO	

Sources: Bloomberg and Argentina, Ministry of Economy and Production. Note: Y = Yes; N = No.

debt swaps transacted at current market yields, do not work during a crisis. This follows from the voluntary or market-based nature of such operations, which implies that they are by definition NPV-neutral. But interest rates are typically higher during crisis, and any NPV-preserving transformation of cash flows made at higher rates would mean a much higher debt-service burden calculated at more normal rates and serves to worsen debt sustainability.

Voluntary debt swaps (and debt buybacks) done during a crisis can be likened to the case of an individual who, unable to service mortgage undertaken when interest rates were low, decides to refinance it at a much higher interest rate in exchange for temporary relief. The mega-swap involved a relief of \$15 billion in undiscounted cash payments for five years in exchange for a commitment to increase Argentina's debt payments by an undiscounted amount of \$65 billion. At a more normal and sustainable discount rate of 12 (7) percent, this implied an increase of about \$1.3 billion (\$10 billion) in the NPV value of debt. It thus significantly worsened Argentina's already shaky debt sustainability.

If a voluntary debt swap is expensive, why would any country want to do it? There are two considerations. First, for a country experiencing an acute liquidity shortage, the only alternative to a marketbased debt swap is either to declare an immediate default or to restructure its debt on nonmarket terms. If the country believes that it has no solvency problem, it may be willing to pay the price to avoid the immediate default. Second, the potential macroeconomic gain from improved liquidity from a swap can be large (if the country remains solvent),<sup>3</sup> while the country does not have to make a full payment on the restructured debt if it is in fact insolvent. A country in a desperate situation thus has a strong incentive to "gamble for redemption," by paying for an expensive debt swap in hopes of obtaining a high-return outcome that may have a low probability.

<sup>&</sup>lt;sup>3</sup>Cline (2003), for example, argues that if the swap had been successful and Argentina had avoided the default, the benefit would have been at least \$45 billion, an amount of lost output in 2002 resulting from the default and devaluation.