

GLOBAL

APRIL 1996

FINANCIAL

STRATEGY

## Corporate Finance

---

### Salomon Brothers

Financial Strategy  
Niso Abuaf  
(212) 783-7328

Shalabh Mehrish  
Quyem Chu  
Jean Hom  
Eric B. Lindenberg

Equity Capital  
Markets/Syndicate  
Peter Blanton  
Andrew MacInnes

Corporate Equity  
Derivatives  
Chris Innes

Economic & Market  
Analysis  
John Lipsky

Fixed Income  
Capital Markets  
Howard Hiller

Liability Management  
Howard Hiller  
Marwan Marshi

Mergers and Acquisitions  
Terence Kawaja

# The Sovereign Issuer's Quarterly: April 1996

---

The authors would like to acknowledge Robert DiClemente and Bill Koch. We would also like to thank Jennifer Piekut for her substantial contribution to the discussion on Zero-to-Full financing structures. In addition, we wish to thank Kimberly Grigas for her contributions, and Mike DeMeo, Betsy Giersch, Pamela Johnson, Christopher Mascaro, and John Spettell for their assistance in the production of this report.

---

**Salomon Brothers**

---

Financial Strategy  
Niso Abuaf  
(212) 783-7328

Shalabh Mehrish  
Quyen Chu  
Jean Hom  
Eric B. Lindenberg

Equity Capital  
Markets/Syndicate  
Peter Blanton  
Andrew MacInnes

Corporate Equity  
Derivatives  
Chris Innes

Economic & Market  
Analysis  
John Lipsky

Fixed Income  
Capital Markets  
Howard Hiller

Liability Management  
Howard Hiller  
Marwan Marshi

Mergers and Acquisitions  
Terence Kawaja

# **The Sovereign Issuer's Quarterly: April 1996**

Introduction and Summary	1
Economic, Policy and Market Trends	3
Equity Market Trends	6
Corporate Equity Derivative Trends	12
Merger and Acquisition Trends	15
Fixed-Income Market Trends	17
Liability Management Trends	22
Fixed-Income Derivative Trends	25
Topic of the Quarter	28
Related Salomon Brothers Research Publications	29

---

**FIGURES**

1. 30-Year U.S. Treasury Yields, 3 Jan 93-8 Mar 96	4
2. Total Rates of Return of Selected Asset Classes, 1Q 95-1Q 96	4
3. Summary of Economic Forecast, 2Q 96	5
4. Net Issuance of Equity by U.S. Corporations, 1952-95	6
5. Equity Mutual Fund Inflows, 1984-96	7
6. Net Purchases of Non-U.S. Equities by U.S. Investors, 1990-95	8
7. Spin-Off Announcement Impact on Stock Prices, 1995-96	9
8. Primary Stock Issuance versus Secondary Sellers, 1985-95	9
9. Exchangeable Security Issuance, 1993-96	10
10. Selected Spin-Offs Completed in the United States, 1995-96	11
11. Selected Spin-Offs Pending, 1995-96	11
12. Selected Companies That Have Publicly Disclosed the Sale of Put Warrants	14
13. Volume of Merger and Acquisition Deals Announced, 1991-95	15
14. Ten Largest Merger and Acquisition Deals Announced in the Fourth Quarter of 1995	15
15. Ten Largest Merger and Acquisition Deals Announced in 1995	16
16. Comparison of U.S. Treasury Yield Curves: 14 Feb 96 and 8 Mar 96	17
17. Weekly Corporate Debt Issuance, 1 Jan 96-23 Mar 96	18
18. Yield Curve Steepness: Spread Between the Five-Year U.S. Treasury Yield and Three-Month LIBOR, 14 Feb 96-8 Mar 96	19
19. Recent Zero-To-Full Bond Issues	20
20. Example of the Duration/Convexity of Zero-To-Full Bonds	20
21. Example of a Synthetic 100-Year Bond for a Non-U.S. Issuer	20
22. Alternative Approaches to Synthetic Long Bonds	21
23. Tax and Accounting Impact of Debt Repurchase of \$100 Par Amount: Premium versus Discount	23
24. Economic Impact of Debt Repurchase: Premium versus Discount	23
25. Interest Savings and Debt Reduction of Debt Repurchase Using \$100 Cash: Premium versus Discount	23
26. Advantages and Disadvantages of a Spreadlock Agreement	25
27. Ten-Year Treasury Forward Drop	26

---

## INTRODUCTION AND SUMMARY

### **Economic, Policy and Market Trends**

Growth prospects are improving in Japan and stabilizing in the United States, but growth has slowed sharply in core European economies. Japanese monetary easing has reached its limits, but the full impact of the September fiscal stimulus package has not yet been fully felt. An earlier-than-anticipated snapback in economic growth has forced the Federal Reserve into a wait-and-see posture. In Germany, monetary policy currently is on hold, and interest rates likely will remain low over the next year.

### **Equity Market Trends**

An increased focus on enhancing shareholder value, in an effort to sustain rising stock prices, will increase capital markets activities in two areas: (1) "repackaging" transactions and (2) monetizations of nonstrategic assets. Investors increasingly will call for corporate assets to be "repackaged" through the completion of subsidiary spin-offs and initial public offerings of carved-out companies. A record number of companies already have completed spin-offs and many more have announced plans to spin-off business units. In addition, corporations have increased their issuance of equity-linked securities to monetize portfolio or cross-holdings of stocks. The Debt Exchangeable for Common Stock (DECS) structure has become the equity-linked vehicle of choice for most issuers since 1993, in part because of the mandatory nature of the conversion feature.

### **Corporate Equity Derivative Trends**

With the growth of stock buyback programs in the past few years, many companies have looked for enhancement strategies. During this period, the sale of put warrants has become a common technique employed by corporations in a wide range of industries to reduce the cost of an open market repurchase program. By writing (selling) put warrants on its own shares, a company provides the buyer with the right to sell a share of stock to the company at the strike price on a future date in exchange for an upfront tax-free premium. Issues addressed in this section include determining the maturity, strike price, style (American or European), pricing, and disclosure requirements of such put warrants.

### **Merger-and-Acquisition Trends**

Mergers and Acquisitions (M&A) activity continues to set records, with volume for full-year 1995 reaching \$458 billion, the highest level in history. Merger activity was led by large transactions in the Financial Services, Media, and Health Care industries, while hostile transactions increased dramatically. Cash comprised slightly half the deal currency in 1995 as financial buyers remained minor players and international activity continued to rise. 1995 saw the reconfiguration of some major corporations as competition for attractive targets heated up.

### **Fixed-Income Market Trends**

The bond market hit an air pocket in the first quarter of 1996. Hints of economic revival disrupted a complacent market, causing Treasury yields to back up by 60-100 basis points. For issuers who need to be in the market in the first half of 1996, we briefly discuss three strategies for reducing cost:

- spreadlocks;
- synthetic put bonds; and
- reverse swaps.

A special focus section examines how to apply Salomon Brothers' Zero-To-Full SM (ZTF SM)<sup>1</sup> bond to create attractive synthetic long bond financing structures.

**Liability Management Trends**

Companies that expect to be net cash flow generators for an extended period of time may decide to use that cash to reduce debt. Financial managers then need to assess which debt obligations to target. We describe a simple decision framework that incorporates the unique characteristics of a cash-financed buyback of a company's outstanding term debt.

**Fixed-Income Derivative Trends**

A Spreadlock Agreement allows an issuer to issue today and benefit from a subsequent rally in the Treasury market. The issuer enters into a Spreadlock Agreement on the date of a corporate bond issuance to lock in an attractive credit spread without locking in the Treasury component. Given the steepness of the yield curve, the Spreadlock Agreement has a positive carry for the issuer.

**Topic of the Quarter**

According to traditional corporate finance theory, a firm's debt-to-equity mix depends on four main factors: (1) the required market rates of returns for debt and equity, (2) the rates at which debt and equity are taxed, (3) potential or perceived bankruptcy costs, and (4) agency costs — that is, conflicts of interest among managers, shareholders, and creditors. When making the debt-to-equity choice, corporate managers balance factors (1), (2), and (4), which argue for more debt against factor (3), which argues for more equity. However, additional factors, including signaling issues and governmental policies, frequently make matters more complicated. With the increasing globalization of the world economy, capital structure trends are likely to change. In such an environment, a full-disclosure strategy about management's expectations is likely to enhance shareholder value in the long term.

---

<sup>1</sup> Zero-To-Full and ZTF are service marks of Salomon Brothers Inc.

John Lipsky  
(212) 783-7995

**Question 1** *What is the economic growth outlook for major industrialized countries?*

**Answer 1** Growth prospects are improving in Japan and stabilizing in the United States, but growth has slowed sharply in core European economies. The U.S. expansion is emerging from a year-long slowdown and could experience a brief burst of growth in the spring, before settling into near-trend growth in the second half of the year.

In Europe, French and German activity probably declined in the fourth quarter of 1995, and growth in 1996 will average only about 1% at best. In both France and Germany, slow economic growth is boosting projections for public deficits compared with the Maastricht Treaty's 3% target.

In Japan, the yen's weakening — together with recent monetary and fiscal stimuli — is helping to rekindle growth. Recent upward revisions to past growth suggest that the recovery in Japan has good momentum heading into 1996.

**Question 2** *What are the economic policy prospects for major industrialized countries?*

**Answer 2** An earlier-than-anticipated snapback in economic growth has forced the Federal Reserve into a wait-and-see posture. Short-term interest rates are on indefinite hold as officials attempt to discern the underlying pace of demand. On balance, fiscal policy shifts will be modestly restrictive even without a budget "deal" because discretionary spending will fall somewhat in any case.

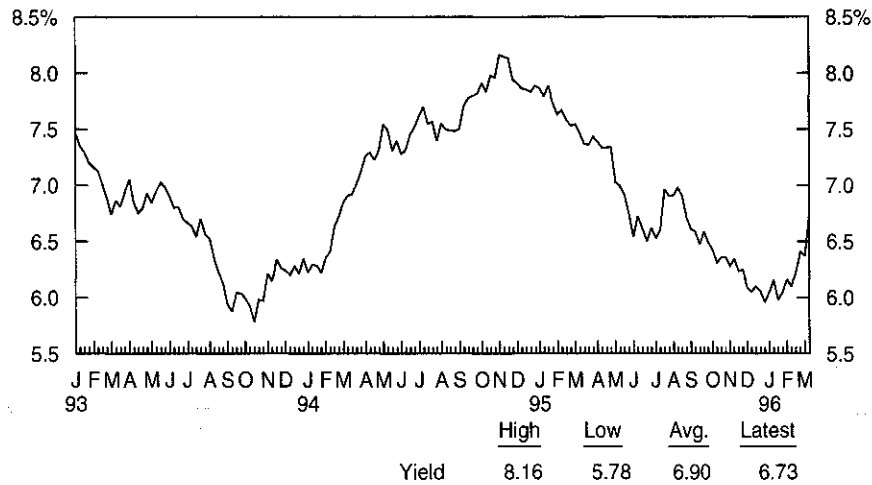
After the latest round of European monetary easing, further short-term rate declines are expected in many countries. In Germany, monetary policy currently is on hold, and interest rates likely will remain low over the next year. Another discount rate cut would become likely if the economy fails to expand in the current quarter, or if the ongoing Deutschemark correction unexpectedly reverses, but this is not yet the base case. With the exception of Germany, fiscal policy is being tightened in virtually all European countries in an effort to meet Maastricht Treaty convergence criteria on EMU by 1997, the planned assessment year. Additional restraint is likely next year — including in Germany — as most European countries still exceed the 3%-of-GDP deficit reference ratio.

Japanese monetary easing has reached its limits, but the full impact of the September fiscal stimulus package has not been fully felt as of yet.

**Question 3** *How have the major markets performed recently?*

**Answer 3** In sympathy with declining Treasury yields in the fourth quarter of 1995, all major asset classes exhibited modest to strong total rates of return in the same period (see Figures 1 and 2). This picture, however, was mixed in the first quarter of 1996 as the economy did better than expected, pushing Treasury yields and the S&P 500 higher. As a result, fixed income markets exhibited modest declines - except high yield and emerging markets.

**Figure 1. 30-Year U.S. Treasury Yields, 3 Jan 93-8 Mar 96**



Source: Salomon Brothers Inc.

**Figure 2. Total Rates of Return of Selected Asset Classes, 1Q 95-1Q 96**

Asset Class	1Q 96	4Q 95	3Q 95	2Q 95	1Q 95
Treasury	-2.22%	4.64%	1.68%	6.21%	4.68%
Corporate	-2.45	4.94	2.23	7.28	5.73
Mortgage	-0.37	3.37	2.02	5.18	5.27
High Yield	1.58	3.38	3.01	6.14	5.90
Emerging Markets	4.46	9.31	6.58	22.31	-11.10
S&P 500	4.80%	5.39%	7.28%	8.80%	9.02%

Source: Salomon Brothers Inc.

**Question 4**

*What is the near-term market outlook?*

**Answer 4**

The prospects for new long-term bond yield declines are more subdued than they were in 1995, and the market risks are more balanced. The economic bounceback has pushed yields into a higher trading range, which could deteriorate further for a short time. However, much of the lost ground should be recouped as fears of overheating subside after mid-year.

In Europe, low inflation prospects provide a favorable background for ten-year Bunds, which also could benefit modestly relative to the U.S. market, as high European deficits prompt increased market doubts about the 1999 start date for EMU. Falling inflation in high-yielding Europe, along with low German interest rates, provide a particularly favorable setting for these bond markets, which remain likely to outperform.

In Japan, the prospective combination of decisively expansionary policies and unconvincing reform efforts risks discouraging domestic and international investors. As a result, short-term interest rates and ten-year Government bond yields likely will be pushed higher over the coming year: Short term market rates could increase by as much as 75 basis points in 1996 — to about 1.25% — while ten-year bond yields could rise by 100-150 basis points, to as high as 4.5%.



The long-term outlook for the U.S. currency remains good, reflecting the prospect of low inflation and a rising national savings rate. The German authorities have welcomed the trend toward correction of the overvalued Deutschemark, which appears likely to slip into the DM1.50-DM1.60/US\$ range later this year, as German interest rates remain low.

**Figure 3. Summary of Economic Forecast, 2Q 96**

	<b>Growth</b>	<b>Monetary Policy</b>	<b>Fiscal Policy</b>
United States	Improving	Neutral	Modestly restrictive
Core Europe <sup>a</sup>	Sluggish	Expansionary	Tightening
Japan	Improving	Neutral	Expansionary

<sup>a</sup> Includes France, Germany and the Benelux countries.  
Source: Salomon Brothers Inc.

## EQUITY MARKET TRENDS

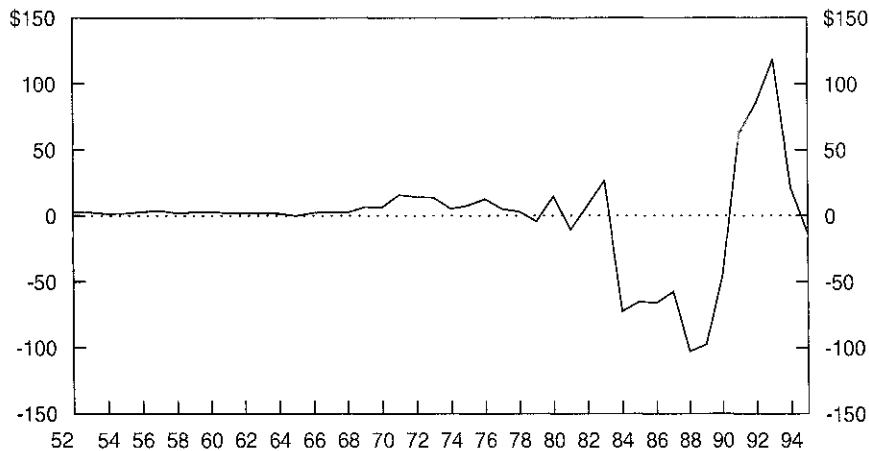
Andrew MacInnes  
(212) 783-4380

Corporate executives and mutual fund managers face the same problem: maximizing shareholder returns. For corporate executives, the performance of new investment opportunities likely will not match the performance of corporate stocks in 1995. Eventual underperformance of stock prices is inevitable. For portfolio managers, the swelling of their funds with new inflows has made generating the returns enjoyed in recent years more difficult going forward.

With the demand for new equity capital by U.S. companies turning negative in 1995, there will be increased pressure on corporate executives to maximize the value of existing capital investments. **An increased focus on enhancing shareholder value, in an effort to sustain rising stock prices, will generate capital markets activity in two areas: (1) "repackaging" transactions, and (2) monetizations of nonstrategic assets.**

Heavy corporate equity issuance and strong earnings in the early 1990s has resulted in the significant deleveraging of corporate America after the "excesses" of the 1980s. The net demand for equity capital (that is, issuance less repurchases) by U.S. companies turned negative in the third quarter of 1994 and remained so through the third quarter of 1995. The extremely active mergers and acquisitions environment also has contributed to the "shrinking supply" of equity. Net issuance in the fourth quarter of 1995 was marginally positive at \$1.2 billion. However, annual equity issuance in 1995 was negative for the first time since 1990 (see Figure 4).

Figure 4. Net Issuance of Equity by U.S. Corporations, 1952-95 (Dollars in Billions)



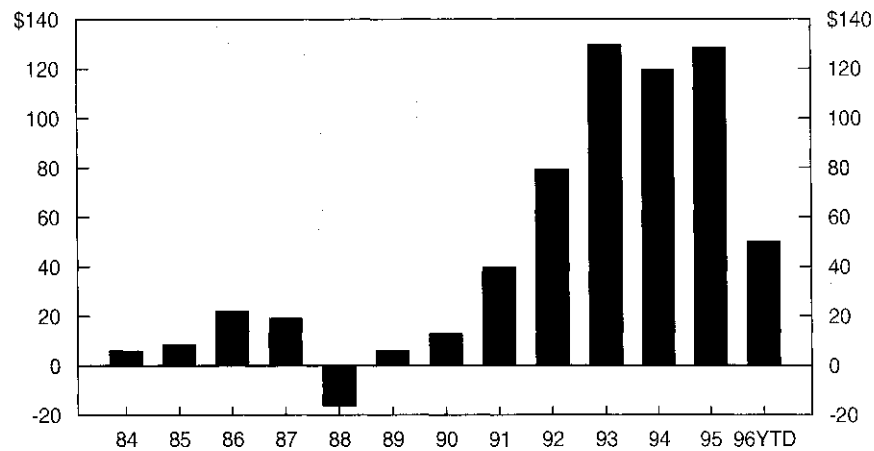
Source: Salomon Brothers Inc.

Equity mutual funds have been the largest new issue buyers in recent years.

Equity mutual funds have been the largest buyers of equity new issues in recent years, largely propelled by the institutionalization of equity investing. The unprecedented level of inflows into equity mutual funds in early 1996 represents new savings (that is, the supply of capital) expecting to achieve "high" returns from investing in equities (see Figure 5). However, the low level of demand for equity capital and the current low inflationary environment may result in lower returns to equity investors going forward than was achieved in recent years.

At the same time, fund managers will face increasing pressure to provide "acceptable" returns. Recent moves by Fidelity Investments, the largest mutual fund group in the U.S., to reassign approximately 30% of its equity portfolio managers to new portfolios is the first sign of this increased level of pressure to perform.

Figure 5. Equity Mutual Fund Inflows, 1984-96 (Dollars in Billions)



Note: Figures for 1996 represent inflows for January and February.  
Source: Investment Company Institute.

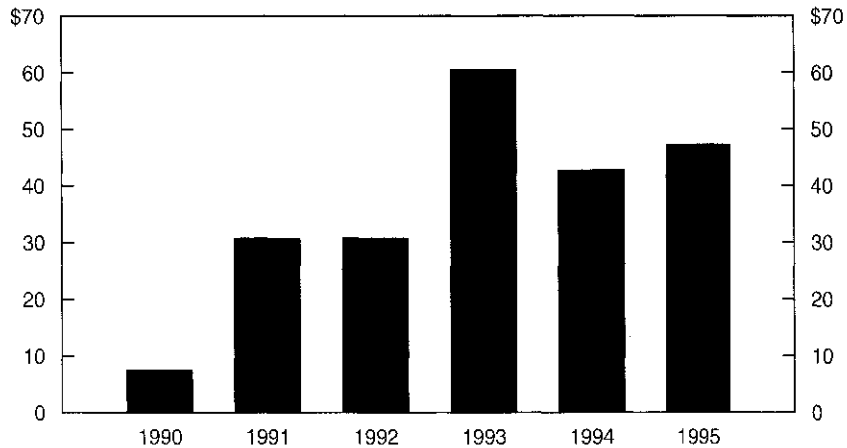
As fund managers search out potentially higher returns overseas, net purchases of non-U.S. equities by U.S. investors are on the rise again, after a dip in 1994. Net purchases of non-U.S. equities in 1995 totaled \$47.2 billion — only 1993's total of \$60.5 billion was higher for a single year — and five times 1990's level (see Figure 6).

The process of investing in non-U.S. equities carries additional risks for investors because the level of disclosure by non-U.S. companies usually is not as comprehensive as that required of all of the companies listed on U.S. stock exchanges. Non-U.S. companies have been reluctant to list in the U.S. because of the reconciliation to U.S. GAAP required by the Securities and Exchange Commission, with the most resistance coming from German and Swiss companies. As the data above show, the absence of U.S. GAAP financial statements has not prevented investment in non-U.S. equities by U.S. investors. However, the reluctance of U.S. regulators to list non-U.S. companies without reconciliation to U.S. GAAP has prevented U.S. investors from receiving adequate non-financial information about companies they are already investing in.<sup>2</sup> Although two

<sup>2</sup> See *Challenges in the Global Capital Markets*, Andrew MacInnes and Trevor Harris, Salomon Brothers Inc., September 1995.

large German conglomerates have adopted U.S. GAAP (that is, Daimler-Benz and Veba), they have done so only after their U.S. share ownership has reached sizable levels. Instead, many more multinationals have preferred to adopt International Accounting Standards (IAS) (for example, Deutsche Bank).

**Figure 6. Net Purchases of Non-U.S. Equities by U.S. Investors, 1990-95 (Dollars in Billions)**



Source: U.S. Treasury.

**1996 will be the "Year of the Spin-Off."**

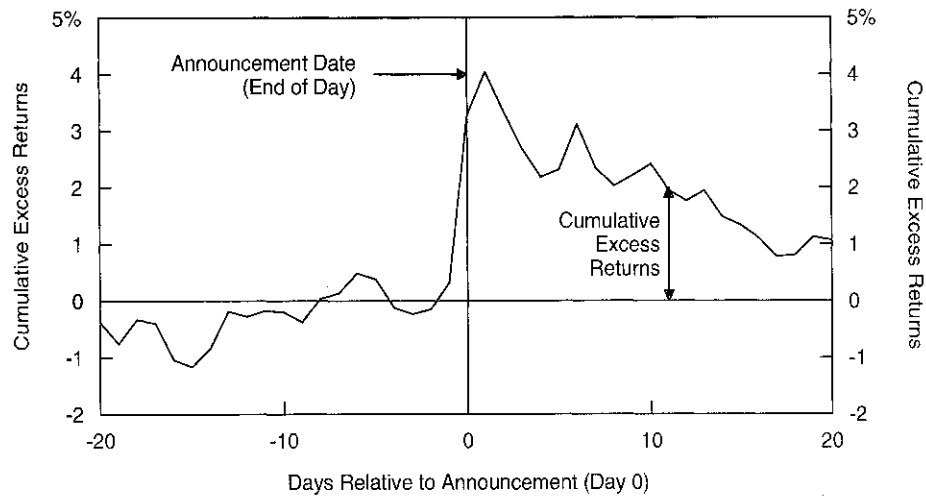
Increasingly, investors will be calling for corporate assets to be "repackaged" through the completion of subsidiary spin-offs and initial public offerings of carved-out companies.<sup>3</sup> Corporate executives also will be under pressure to monetize nonstrategic assets. A record number of companies already have completed spin-offs and many more have announced plans to spin-off business units (see Figures 10 and 11). Public market spin-offs totaled approximately \$30 billion in 1995; however, the year 1996 will be the "Year of the Spin-Off." General Motors will contribute to the list with what we expect to be the largest spin-off ever when it distributes shares of Electronic Data Systems ("EDS") to shareholders of its Class E stock. EDS currently trades as a targeted stock and has a market capitalization of approximately \$25 billion.

**Fad surfers beware: the market rewards those that deliver.**

The market generally has reacted positively to the formal announcement of an intent to spin-off a business, but with the broad market performing so strongly, companies have been hard pressed to maintain their initial gains. Figure 7 shows the stock price performance relative to the S&P 500 of companies around the time of their formal announcement of a spin-off.

<sup>3</sup> See *Repackaging Corporate Assets: Creating Shareholder Value Through Carve-Outs, Spin-Offs, Split-Offs and Targeted Stock*, Andrew MacInnes and Peter Blanton, Salomon Brothers Inc, May 1995.

**Figure 7. Spin-Off Announcement Impact on Stock Prices, 1995-96**

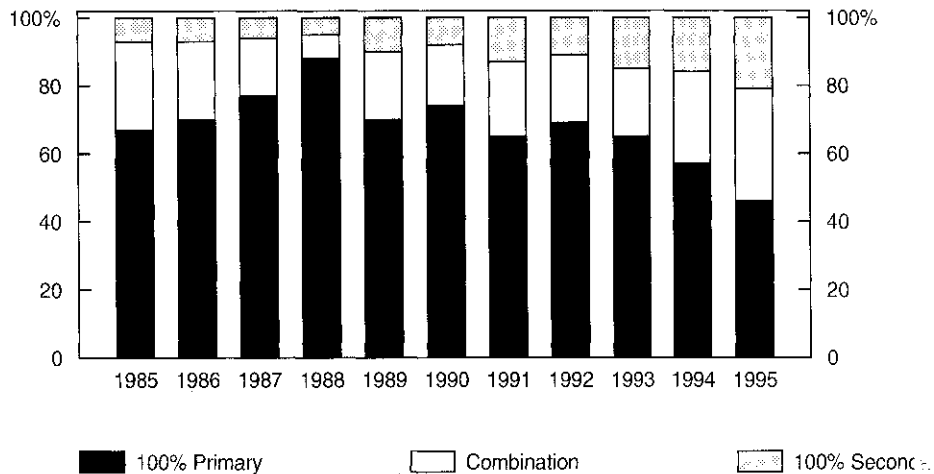


Source: Salomon Brothers Inc.

**An increasing amount of equity issuance represents secondary selling.**

In 1995, a record proportion of public market equity issuance represented monetizations by selling shareholders (that is, it was stock being sold by third parties). Although primary equity issuance volumes have risen, they have represented a steadily falling percentage of total issuance in recent years. In 1990, primary issuance represented 74% out of total equity issuance of \$18 billion. In 1995, the proportion had declined to a low of 46% out of a total of \$78 billion. Interestingly, 100% secondary offerings, which were once considered taboo, have been on a steady increase. In 1995, 100% secondary offerings represented 21% (\$16.6 billion) of total equity issuance, whereas in 1985 they represented a mere 8% (\$1.8 billion) (see Figure 8).

**Figure 8. Primary Stock Issuance versus Secondary Sellers, 1985-95**



Source: Securities Data Company.

**DECS have become the most popular equity-linked monetization vehicle.**

Equity-linked securities have been used by selling shareholders to increase the target universe of investors for a given transaction, with the aim of minimizing impact on the underlying stock price while maximizing the size of the offering. However, there also has been increasing issuance of equity-linked securities by corporations, to monetize portfolio or cross holdings of stocks. Issuance of such exchangeable securities (that is, securities convertible into portfolio or cross-holdings of stock) accounted for approximately 13% of total equity-linked security issuance in 1995 (see Figure 9).

**Salomon Brothers created the DECS product.**

The DECS security (Debt Exchangeable for Common Stock) was created by Salomon Brothers in 1993 for American Express.<sup>4</sup> Since then, the structure has become the equity-linked vehicle of choice for most issuers, in part because of the mandatory nature of the conversion feature. Salomon Brothers continues to dominate the DECS market in terms of underwriting, trading and research.

**Figure 9. Exchangeable Security Issuance, 1993-96 (Dollars in Millions)**

Offer Date	Issuer	Underlying Stock	Exchangeable Security Type	Offering Amount	Coupon	Conversion Premium/Cap
03/28/96	Nortel	Telecom de Argentina	DECS	\$250	10.00%	15.0%
03/13/96	Times Mirror	Netscape	DECS	100	4.25	15.0
02/07/96	Morgan Stanley <sup>a</sup>	Telebras	PERCS	168	6.00	42.5
01/11/96	Horsham	Barrick Gold	25-Year Notes	250	3.00	6.5
01/04/96	Tenet Healthcare	Vencor	10-Year Notes	320	6.00	20.0
12/14/95	Cooper Industries	Wyman-Gordon	DECS	203	6.00	16.0
12/07/95	Enron	Enron Oil & Gas	DECS	219	6.25	21.0
12/04/95	US West	Enhance Financial	DECS	117	7.83	18.0
11/27/95	Jefferson-Pilot	NationsBank	DECS	120	7.25	20.0
11/21/95	Laidlaw One	US Filter	DECS	64	5.75	22.0
11/15/95	AJL PEPS <sup>b</sup>	Amway Japan	Trust DECS	300	7.50	18.0
08/09/95	Time Warner <sup>c</sup>	Hasbro	PERCS	374	4.00	75.5
07/27/95	Houghton Mifflin	Inso	DECS	119	6.00	16.0
07/20/95	Merrill Lynch <sup>d</sup>	MGIC	DECS	240	6.50	20.0
04/10/95	Allstate	PMI Group	DECS	318	6.76	22.1
03/20/95	Sprint	Southern New England Telecommunications	DECS	138	8.25	15.3
08/01/94	Atlantic Richfield	Lyondell	DECS	988	9.00	12.0
03/07/94	McKesson	Armor All Products	10-Year Notes	160	4.50	25.0
02/24/94	Cointel	Telecom de Argentina	DECS	320	7.00	20.0
02/07/94	First Chicago	NEXTEL	DECS	236	5.50	20.0
11/18/94	Horsham	Barrick Gold	DECS	600	3.25	10.0
10/07/93	American Express	First Data	DECS	867	6.25	22.1
10/04/93	Pennzoil	Chevron	10-Year Notes	435	4.75	22.1
03/03/93	News America Holdings	News Corporation	Zero-Coupon Notes	507	5.50	18.0
01/06/93	Pennzoil	Chevron	10-Year Notes	350	6.50	20.4

<sup>a</sup> Investors receive the first 42.5% price appreciation in Telebras stock and none thereafter. This was purely a financing/arbitrage transaction for Morgan Stanley Group. <sup>b</sup> DECS investors receive an additional 0.25 shares on downside. <sup>c</sup> Investors receive the first 75.5% price appreciation in Hasbro common stock and none thereafter. <sup>d</sup> Merrill Lynch entered into a forward agreement to purchase shares of MGIC Corp. from Northwestern Mutual Life as a part of this transaction. Merrill Lynch retains proceeds from the offering until maturity of the forward agreement.

Source: Salomon Brothers Inc.

<sup>4</sup> See *The Issuer's Guide to DECS*, Andrew MacInnes and Peter Blanton, Salomon Brothers Inc, July 1995.

**Figure 10. Selected Spin-Offs Completed in the United States, 1995-96 (Dollars in Millions)**

Effective Date	Subsidiary	Main Line of Business	Deal Value	Parent	Business Description
02/01/95	Cox Communications	Broadcasting/Cable TV	\$932	Times-Mirror	Printing & Publishing
02/27/95	Strattec Security Locks	Automotive	75	Briggs & Stratton	Machinery
03/01/95	Capital One Financial Corp.	Personal Credit Institutions	1,067	Signet Banking	Banking
05/22/95	Healthdyne Technologies	Surgical, Medical Instruments, Apparatus	65	Healthdyne Inc.	Electromedical Apparatus
05/27/95	Darden Restaurant	Restaurants & Lodging	1,541	General Mills	Food Processing
05/31/95	U.S. Industries	Electrical & Electronics	743	Hanson Plc	Chemicals & Allied Products
06/30/95	Harrah's Entertainment	Recreation & Entertainment	1,448	Promus Companies	Restaurants & Lodging
07/12/95	Alistate	Insurance	8,700	Sears, Roebuck	Department Stores
08/28/95	Crown Vantage	Paper Mills	170	James River	Paper & Wood Products
09/12/95	Culligan Water Unit	Refrigerator & Service Industry Machine	175	Samsonite Corp.	Misc Manufacturing
09/15/95	EVEREN Securities	Security Brokers & Dealers	55	Kemper Corp.	Insurance
09/29/95	Ben Franklin Retail Stores	Wholesale Trade	62	Foxmeyer Health	Wholesale Drugs
10/02/95	MFS Communications	Telecommunications	1,794	Kiewit Diversified Group	Construction and Misc.
10/02/95	Transport Holdings	Accident & Health Insurance	64	Travelers	Insurance
10/10/95	Transpro Inc	Motor Vehicle Parts, Accessory	63	Allen Group	Electronics
10/20/95	First Mississippi Gold	Mining	310	First Mississippi Corp.	Agriculture Chemicals
11/06/95	Healthdyne Info Enterprises	Computer Software	140	Healthdyne Inc.	Electromedical Apparatus
11/10/95	Investors Financial Services	Mutual fund custody svc	56	Eaton Vance Corp.	Fund Management
11/30/95	Schweitzer-Maduit International	Paper Mills	352	Kimberly-Clark Corp.	Paper & Wood Products
12/15/95	Lexington Global Asset Mgrs	Investment Management	25	Piedmont Management Co.	Insurance
12/15/95	ITT Hartford	Insurance	5,795	ITT Industries	Automotive
12/15/95	ITT Destinations	Restaurants & Lodging	5,926	ITT Industries	Automotive
12/28/95	Castle & Cooke	Real Estate	299	Dole Food Company	Agriculture
12/29/95	Host Marriott Services	Food and Beverage Concessions	222	Host Marriott	Restaurants & Lodging
01/09/96	Bally's Total Fitness	Membership Sport & Rec. Clubs	143	Bally Entertainment	Recreation & Entertainment
01/12/96	Roadway Express	Trucking & Leasing	311	Caliber System Inc (Roadway Services)	Trucking & Leasing
01/23/96	Highlands Insurance	Insurance	240	Halliburton Company	Building Materials & Construction
03/07/96	360° Communications (formerly Sprint Cellular)	Cellular	3,084	Sprint Corp.	Telecommunication Services & Equipment
03/08/96	Morrison Health Care	Hospital Food Service	96	Ruby Tuesday (formerly Morrison Restaurants)	Restaurants/Food Service
03/08/96	Morrison Fresh Cooking	Restaurants	33	Ruby Tuesday (formerly Morrison Restaurants)	Restaurants/Food Service
03/26/96	Earthgrains (formerly Campbell Taggart)	Baked Goods Producer/Distributor	309	Anheuser-Bush	Beverages

Source: Salomon Brothers Inc.

**Figure 11. Selected Spin-Offs Pending, 1995-96**

Announcement Date	Subsidiary	Main Line of Business	Parent	Main Line of Business
07/27/95	Union Pacific Resources	Energy Resources	Union-Pacific	Railroads
08/07/95	Electronic Data Systems	Data Processing	General Motors	Automotive
09/20/95	NCR Corp. (formerly AT&T Global Information Solutions)	Office & Business Equipment	AT&T	Telecommunication Services
09/20/95	Lucent Technologies (formerly AT&T Equipment)	Telecommunications Equipment	AT&T	Telecommunication Services
11/01/95	Tupperware Unit	Tupperware	Premark International	Misc Manufacturing
11/30/95	Electronic Commerce Unit	Electronic Commerce	Sterling Software	Computer Software
12/20/95	U.S. Psych	Psychiatric Centers	Community Psychiatric	Hospital
12/28/95	Arbatax International	Financial Services	Mercer International	Paper & Wood Products
01/09/96	Cognizant Corp.	Data business	Dun & Bradstreet	Printing & Publishing
01/09/96	A.C. Nielsen	Consumer Market Information	Dun & Bradstreet	Printing & Publishing
01/17/96	Payless ShoeSource	Shoe Retailer	May Department Stores	Department Stores
01/30/96	Energy Unit	Energy	Hanson Plc	Chemicals & Allied Products
01/30/96	Chemicals Unit	Chemical	Hanson Plc	Chemicals & Allied Products
01/30/96	Tobacco Unit	Tobacco	Hanson Plc	Chemicals & Allied Products
02/15/96	Service Unit	Services	Dial Corp.	Personal Care Products
02/22/96	CompuServe	Internet Service Provider	H & R Block	Personal Services
03/07/96	Choice Hotels International	Lodging, Hotels	Manor Care Inc	Skilled Nursing Care
03/13/96	Getty Petroleum Marketing	Petroleum Bulk Stations	Getty Petroleum Corp. (to be renamed Getty Realty Corp.)	Petroleum Bulk Stations, Real Estate
03/21/96	Newport News Shipbuilding	Shipyard	Tenneco Inc	Farm Machinery & Equip

Source: Salomon Brothers Inc.

---

## CORPORATE EQUITY DERIVATIVE TRENDS

Chris Innes  
(212) 783-2280

With the growth in the past few years of stock buyback programs, many companies have looked for enhancement strategies. During this period, the sale of put warrants has become a common technique employed by corporations in a wide range of industries to reduce the cost of an open market repurchase program.<sup>5</sup> Below, we answer some of the most frequently asked questions on the put warrant strategy.<sup>6</sup>

### Question 5

*Why would a company sell puts as part of a stock buyback program?*

### Answer 5

By writing (selling) put warrants on its own shares, a company provides the buyer with the right to sell a share of stock to the company at the strike price on a future date in exchange for an upfront tax-free premium. This means that if a company sets the put warrant strike price equal to its target repurchase price and staggers the maturities over the desired repurchase time period, then the company is being paid for committing to its repurchase decision.

### Question 6

*If the puts are not exercised because the stock price rises, how does the company buy the stock?*

### Answer 6

Puts should be used as a means of hedging the cost of a repurchase program, not as the primary vehicle for repurchasing shares. For example, a company which plans to buy 1,000,000 shares over the next year might sell four tranches of 125,000 puts (500,000 total) that expire in three-month intervals. The company would then purchase shares in the open market on a regular or opportunistic basis. The puts would serve as a hedge for the shares that the company plans to buy in the future.

Alternatively, if the company wants to guarantee that a certain number of shares are retired, the company should consider combining Salomon's Accelerated Share Repurchase<sup>SM</sup> with a put warrant program.<sup>7</sup>

### Question 7

*How do companies select maturity and strike price?*

### Answer 7

Companies may be advised by some dealers to periodically sell smaller-sized, short-dated,  $\frac{1}{8}$  out-of-the-money put warrants. This enables the dealer to lay off the position in the listed options market. A preferable strategy would encourage companies to customize the put program to meet their repurchase objectives. Specifically, companies should select a maturity to match their repurchase time horizon. If the company plans to repurchase stock over the next year, then a series of puts expiring over the next year would be appropriate. If the company is only planning its buyback goals quarter-to-quarter, then three-month puts may be preferred. The put warrant strike price should be set at the company's target repurchase price. For most companies this is  $\frac{1}{8}$  to 10% below the current market price.

---

<sup>5</sup> See also, *Equity Put Warrants: Reducing the Cost and Risks of a Stock Repurchase Program*, Kevin Thatcher, et al., Salomon Brothers Inc., April 1994.

<sup>6</sup> Companies should consult with their own legal counsel and auditors for advice relating to the sale of put warrants.

<sup>7</sup> "Accelerated Share Repurchase" and "ASR" are service marks of Salomon Brothers Inc. For a detailed description, see *The Accelerated Share Repurchase*, Chris Innes, et al., Salomon Brothers Inc., November 1995.



**Question 8** *Wouldn't a company be maximizing a premium by selling three-month puts every quarter?*

**Answer 8** Consider the following: A company with a \$50 stock price could sell a three-month \$48 strike put for \$1.35, or a one-year \$48 strike put for \$2.85. Which one offers a better deal for the company? On a risk-adjusted basis, they are probably neutral. In fact, both options are priced with an implied "volatility" of 25%. The apparent increased premium from selling three-month puts four times per year results from the increased rollover exposure the company faces at the end of each quarter. For example, if the company's stock price advances to \$67 in three months, the company would have several choices: (1) sell another three-month struck 4% out-of-the-money, which would result in a considerably higher all-in repurchase price, (2) sell another three-month put struck at \$48 for \$0.01, or (3) do nothing. Also note that with the stock at \$67 at quarter end, the one-year put that the company sold for \$2.85 now is worth only \$0.20. If the company wants to extinguish the repurchase obligation at this point, it could simply repurchase the put.

**Question 9** *Do most companies sell American- or European-style puts?*

**Answer 9** Most companies sell European-style puts which means that the puts are only exercisable at maturity. While exchange-listed options are American-style (exercisable at anytime), most companies sell European-style puts in private transactions. This simplifies integration of the puts with the open market repurchase activity, and mitigates potential legal concerns about the puts being exercised during a company repurchase blackout.

**Question 10** *Why does a dealer such as Salomon Brothers buy puts?*

**Answer 10** Salomon Brothers is *not* seeking to profit by a decline in the company's stock price. Rather, Salomon is trying to capture the implied volatility in the put warrants through trading in the underlying stock.<sup>8</sup> To capture the volatility implied in a put warrant, Salomon initially buys approximately 25%-40% of the shares underlying the put (depending on strike price and maturity). This "delta hedge" is then adjusted each day to reflect the probability that the put will be exercised at maturity. Specifically, when the stock rises, Salomon sells shares because it is less likely that the put will be in-the-money at maturity. When the stock price falls, Salomon buys stock because it is more likely that the put will be in-the-money at maturity. This means that, over the life of the put warrant, Salomon will buy low and sell high.

**Question 11** *Is there a limit on the number of puts a company can sell?*

**Answer 11** As a corporate governance matter, companies will not sell puts beyond the board-authorized share repurchase limitations. Although there are no regulatory limitations on the number of put warrants a company can sell, there will be a pricing impact (that is, larger put programs will lower implied volatility and resulting premiums paid to the company). A general recommendation is that the company not have an aggregate number of puts outstanding in excess of 5x-10x average daily trading volume.

<sup>8</sup> See also, *Understanding the Value of Volatility: Mobilizing an Undermanaged Corporate Asset*, Joe Eimlinger, et al., Salomon Brothers Inc, January 1994.

**Question 12**

*How are puts priced?*

**Answer 12**

Put warrants can be valued using a conventional Black-Scholes option model (found on Bloomberg) or one purchased from a number of commercial software vendors. The key variables entered into the option model are: maturity, stock price, put strike price, common dividend yield, risk-free interest rate, and volatility. The only variable in the model that is not obvious is volatility. To determine volatility, derivative market makers will look at the historical price volatility and implied volatility in the company's listed options (if any). When soliciting put warrant bids, companies should track both indicative put prices and implied volatility.

**Question 13**

*What disclosure is required?*

**Answer 13**

Disclosure of the sale of put warrants will depend on the company's conclusion as to its materiality. If the company's public disclosure of a share repurchase authorization does not specify the means of repurchase, most companies will conclude that they do not need to separately disclose their put programs. However, if the repurchase commitment represented by outstanding puts (strike price x number of puts outstanding) exceeds 3% of book equity, a company generally will choose to disclose the puts in the footnotes to its financial reports. In addition, companies may choose to include the repurchase commitment as a line item on their balance sheet above shareholders' equity.

**Figure 12. Selected Companies That Have Publicly Disclosed the Sale of Put Warrants**

Adobe Systems	HealthCare COMPARE	Novell
American Express	Houghton Mifflin	Octel Communications
American General	Intel Corporation	Oracle Corporation
Boeing	IBM	Physician Corp of America
Boston Scientific	Liz Claiborne	Reebok International
Cadence Design Systems	McDonald's	Tricord Systems
Clorox Company	Microsoft	Union Carbide
Dow Chemical Company	Mobil	WMX Technologies
General Mills	New York Times	Wrigley

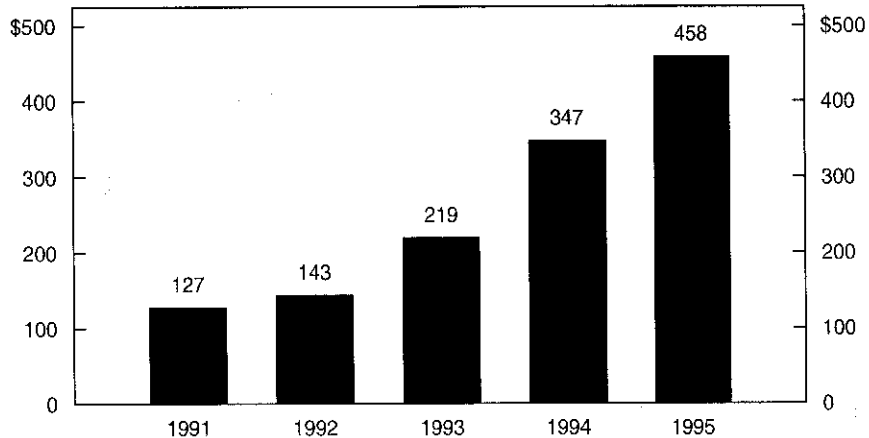
Source: Company 10-Q and 10-K reports.

## MERGER AND ACQUISITION TRENDS

Terence Kawaja  
(212) 783-7241

**M&A activity continues to set records** with over 2,400 transactions — totaling \$108 billion — announced in fourth-quarter 1995. This level brings the volume for full-year 1995 to \$458 billion, the highest level in history. This represents an increase of 32% over the previous record of \$347 billion set in 1994, and marks the fourth consecutive increase in M&A activity.

Figure 13. Volume of Merger-and-Acquisition Deals Announced, 1991-95 (Dollars in Billions)



Source: Securities Data Company.

**Merger activity was led by large transactions in the Financial Services, Media and Health Care industries.** These familiar contributors accounted for almost half of the total activity. In the fourth quarter, four of the top ten transactions were commercial bank combinations. In total, more than \$15 billion-plus commercial bank mergers were announced in 1995, resulting in significant consolidation at both the regional and money center bank level. Several large media deals such as Disney/Cap Cities/ABC, Time Warner/Turner Broadcasting and Seagram/MCA made the top ten list as well. In addition, significant activity in the TV and radio sectors led to record valuations. Pharmaceutical company mergers dominated the cross-border activity with three combinations in excess of \$7 billion.

Figure 14. Ten Largest Merger and Acquisition Deals Announced in the Fourth Quarter of 1995 (Dollars in Millions)

Date Announced	Acquiror/Target	Industry	Value
18 Oct 95	Wells Fargo & Co/First Interstate Bancorp	Financial Services	\$10,930
29 Nov 95	Travelers Inc/Aetna Life & Casualty-Ppty	Financial Services	4,000
06 Nov 95	International Paper Co/Federal Paper Board Co	Paper/Forest Products	3,399
06 Nov 95	Fleet Financial Group Inc/National Westminster Bancorp	Financial Services	3,260
10 Oct 95	CoreStates Financial Corp/Meridian Bancorp Inc	Financial Services	2,727
30 Nov 95	Broken Hill Proprietary Co Ltd/Magma Copper Co	Mining	2,294
27 Oct 95	Praxair Inc/CBI Industries Inc	Industrial	2,138
13 Oct 95	Softbank Corp/Ziff-Davis Publishing Co	Media	2,100
29 Nov 95	Rite Aid Corp/Revco DS Inc	Retail	2,094
12 Dec 95	Bank of Boston Corp/BayBanks Inc	Financial Services	2,014

Note: Includes stake of purchases of \$100 million and greater.  
Source: Investment Dealers Digest.

**Figure 15. Ten Largest Merger and Acquisition Deals Announced in 1995 (Dollars in Millions)**

Date Announced	Acquiror/Target	Industry	Value
31 Jul 95	Walt Disney Co/Capital Cities/ABC Inc	Media	\$18,863
18 Oct 95	Wells Fargo & Co/First Interstate Bancorp	Financial Services	10,930
28 Aug 95	Chemical Banking Corp/Chase Manhattan Corp	Financial Services	9,884
28 Feb 95	Hoechst AG/Marion Merrell Dow Inc	Health Care	7,121
21 Aug 95	Upjohn Co/Pharmacia AB	Health Care	7,003
29 Aug 95	Time Warner/Turner Broadcasting Systems Inc	Media	6,881
17 Jul 95	Kimberly-Clark Corp/Scott Paper Co	Paper/Forest Products	6,823
13 Jun 95	First Data Corp/First Financial Management	Information Services	5,758
10 Apr 95	Seagram Co Ltd/MCA Inc	Media	5,704
12 Jul 95	First Chicago Corp/NBD Bancorp	Financial Services	5,243

Note: Includes stake of purchases of \$100 million and greater.

Source: Investment Dealers Digest.

**Hostile transactions increased dramatically.** In 1995, over \$65 billion of hostile transactions representing 14% of total deal volume were announced. This represents the highest level since the late 1980s and follows an upward trend over the past several years. The list of hostile acquirors contains blue chip names like IBM, Wells Fargo and Peco Energy, although the largest hostile takeover, launched by Kirk Kerkovian's Tracinda Corp on Chrysler Corporation, was unsuccessful.

**Cash comprised slightly under half the deal currency in 1995,** which is in line with historical levels.

**Financial buyers remain minor players** in this strong market for strategic M&A with only \$7 billion of deals for the year, representing less than 2% of total volume.

**International activity continues to rise,** with foreign buyers representing 21.8% of deal volume involving a U.S. target.

**1995 saw the reconfiguration of some major corporations.** AT&T's announced break-up demonstrated the need for single-business focus. Other conglomerates such as Tenneco, ITT and Westinghouse got the "stick to the knitting" religion and shed noncore businesses in attempt to increase shareholder value. In the latter two cases, the companies essentially reconfigured themselves as media companies with large acquisitions and divestitures.

**Competition for attractive targets is increasing.** In 1995, ten announced deals were topped by different suitors. This level is up from seven deals in 1994 and zero in the previous two years. The larger deals included L'Oreal's \$764 million bid for Maybelline topping Jon A. Benckiser of Germany and Soft Key International's \$595 million bid for the Learning Company, which topped a deal the Company agreed to with Broderbund Software. The implication of this activity is that company directors who do not want to sell a business in a public auction can negotiate a quiet deal with the assurance that, if a high-value buyer exists, the board can accept the higher bid by utilizing their fiduciary duty out. This activity also increases the scrutiny over the level of and conditions for break-up fees on negotiated transactions.

**FIXED-INCOME MARKET TRENDS**

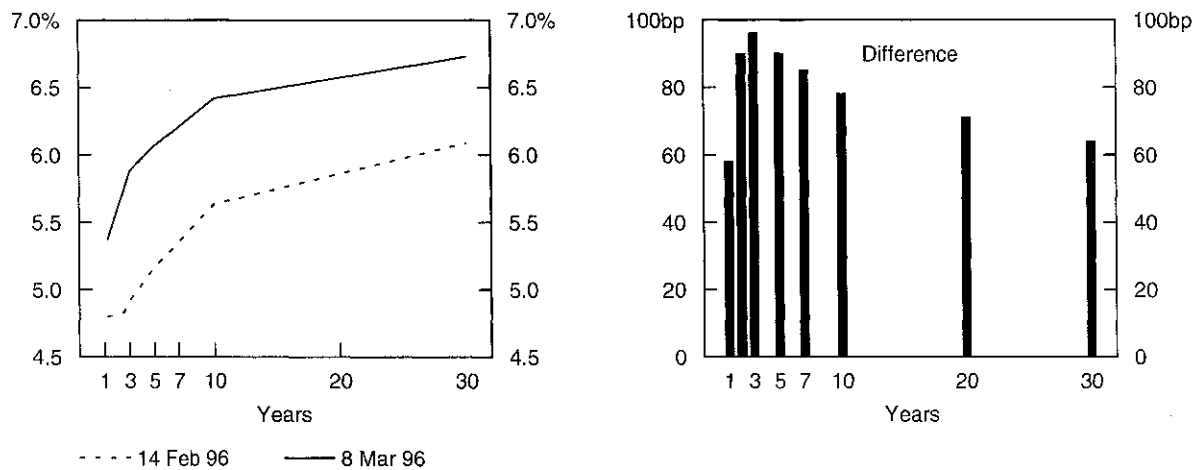
**Howard Hiller**  
 (212) 783-3703

The bond market hit an air pocket in the first quarter of 1996. Hints of economic revival disrupted a complacent market, causing Treasury yields to back up by 60-100 basis points. For issuers who need to be in the market in the first half of 1996, we briefly discuss three strategies for reducing cost: (1) spreadlocks, (2) synthetic put bonds, and (3) reverse swaps. A special focus section examines how to apply Salomon Brothers' Zero-To-Full SM (ZTF SM) bond to create attractive synthetic long bond financing structures.

**Paradise lost . . . bears seize control.**

The Treasury yield curve suffered damage of 60-100 basis points in response to evidence of a firming economy, headlined by the 705,000-leap in February job growth, announced on March 8 (see Figure 16). Bond bears quickly wrestled market leadership from entrenched bulls. The intraday trading patterns are all too clear: Normally bullish economic data are greeted with a yawn, and neutral data are viewed as an excuse to sell.

**Figure 16. Comparison of U.S. Treasury Yield Curves: 14 Feb 96 and 8 Mar 96**



Source: Salomon Brothers Inc.

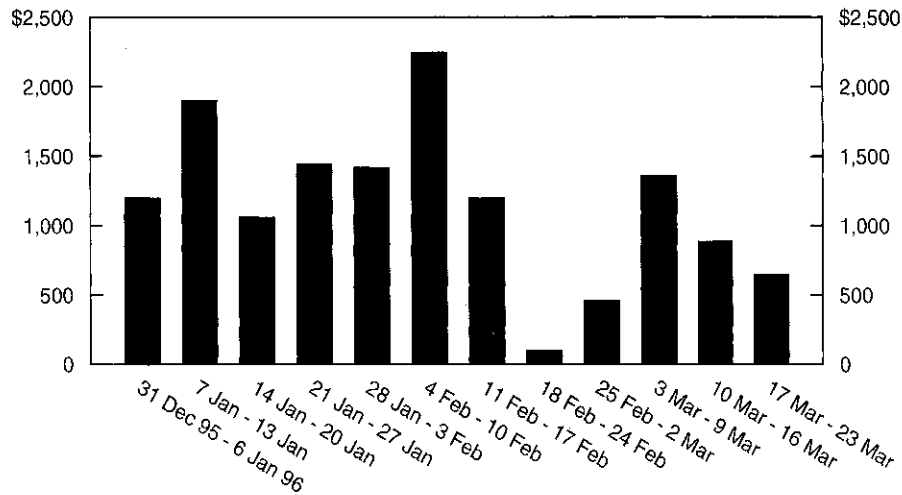
**Paradise regained . . . waiting for the market to refocus on fundamentals.**

Salomon Brothers' economists believe that the long bond will retrace its losses when investors refocus their attention on attractive long-term inflation fundamentals. We have not abandoned our forecast of a 6% long bond by the second half. Nonetheless, the bearish sentiment that pervades the market may take more than one month to dislodge. The Fed and the market will await cleaner economic data to drive interest rates lower at both the short and long ends of the yield curve.

**Bond spreads remain firm as the issuance calendar shrinks.**

The corporate bond market has survived the spike in Treasury yields with spreads intact. Investors reason that the backup in absolute rates will dampen new issue volume and spreads will tighten as buyers compete for scarce supply (see Figure 17). This logic may, in fact, be flawed as issuers who have delayed financing may be satisfied with mere market stability. In fact, the largest investment-grade corporate bond deal in history was priced by Disney on March 22. Disney raised \$2.6 billion in a *global* offering of 5-year and 10-year bullets. The deal was increased in size twice from an originally-announced \$1.5 billion.

Figure 17. Weekly Corporate Debt Issuance, 1 Jan 96 - 23 Mar 96 (Dollars in Millions)



Source: Salomon Brothers Inc.

### What strategies can be used to mitigate the impact of the recent rise in rates for issuers with near-term financing needs?

#### Spreadlocks

For issuers that view a light issuance calendar as an ideal backdrop for telling their credit story and bringing a new deal to market, the Spreadlock strategy is a simple and appealing hedging tool. The concept is a straight-forward one: The issuer prices a new debt offering and simultaneously "unlocks" the Treasury component of the financing through a long repo-financed Treasury position.<sup>9</sup> (The mechanics of this transaction are described more fully in the *Fixed-Income Derivative Trends* section.) As Treasury rates decline, the issuer can incrementally "unwind" the position to capture the benefit of the yield improvement. If the long position is unwound in stages, the issuer has effectively created a synthetic medium-term note (MTN) financing. However, this approach creates an additional benefit over periodic MTN issuance: It avoids the liquidity penalty that the market often charges for small issue size.

#### Reverse Swaps

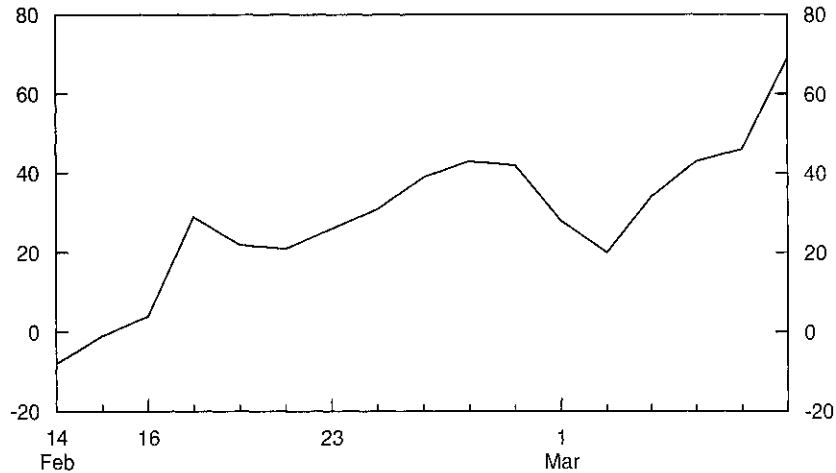
For issuers willing to increase their floating-rate exposure, issuers can swap a short-term fixed-rate debt financing to a floating-rate obligation using a reverse interest rate swap. The rising steepness of LIBOR-to-5-year Treasuries has made this approach more lucrative for issuers (see Figure 18). For example, an issuer who can finance in 5-years at T + 50bp (all-in) can swap its fixed-rate obligation to LIBOR + 19bp, assuming a swap spread of +31bp. Swap spreads have widened in the last month by about 5 basis points, further reducing the issuer's floating-rate cost. In addition, unlike commercial paper, synthetic floating-rate debt avoids any incremental liquidity risk.

The Spreadlock strategy is an alternative to waiting that allows issuers to take advantage of historically narrow spreads.

Reverse swaps create savings of almost 100 bp in the current yield curve environment.

<sup>9</sup> With the term repo rate for the on-the-run ten-year Treasury currently in the 2%-3% range, the issuer enjoys substantial positive carry while the trade is on.

**Figure 18. Yield Curve Steepness: Spread Between the Five-Year U.S. Treasury Yield and Three-Month LIBOR, 14 Feb 96-8 Mar 96**



Source: Salomon Brothers Inc.

By selling a put option in the swaption market, issuers can triple the savings available in the corporate bond market.

### **Synthetic Put Bonds**

Salomon Brothers has developed an innovative financing technology that allows issuers to create synthetic put bonds while avoiding "marked-to-market" accounting treatment. This strategy has been described in detail in a recent strategy report.<sup>10</sup> In the current market, borrowers can expect to save about 5-10 basis points by replacing a seven-year bullet with a 30 Put/7 bond. Using Salomon's "cancelable swap" technology to synthetically replicate the put bond achieves savings in excess of 25 basis points.

### **Focus on Zero-To-Full Bonds: A Synthetic Approach to Long Bonds**

A "building-block" approach to long-term financing.

Salomon Brothers has developed a technology that can effectively lower the cost of long-term financing. By bifurcating, for example, a 100-year or 40-year bond into two tranches, an issuer can capture savings of 10-20 basis points. The longer tranche of this financing framework is Salomon Brothers' Zero-To-Full<sup>SM</sup> (ZTF<sup>SM</sup>) bond.

Four issuers of diverse credit quality have utilized Salomon Brothers' ZTF bond structure recently to take advantage of market demand for long-duration, high-convexity securities (see Figure 19).<sup>11</sup> When combined with shorter-duration instruments to create a synthetic traditional long-term bond, the issuer essentially "arbitrages" its financing yield curve and reduces its all-in cost of financing.

<sup>10</sup> See *Issuing Put Bonds Synthetic to Reduce Financing Cost*, Samir Shah, et al., Salomon Brothers Inc., February 6, 1996

<sup>11</sup> Duration is approximately the percentage price change of a bond for a 100-basis-point change in yield — a measure of price sensitivity to yields. For example, if rates decline 100 basis points, a 30-year bond (duration=11.6) will increase in price by approximately 11.6%. Convexity is the change in *duration* for a 100-basis-point change in yield. For example, the convexity of a 30-year bond is about 2.2. It can be viewed as the difference between how much the bond rises and how much it falls when rates change by 100 basis points.

### What is a Zero-To-Full (ZTF) bond?

The ZTF pays no cash interest for a fixed number of years (the "noncash period") and then pays cash interest for the remaining years.

Figure 19. Recent Zero-To-Full Bond Issues (Millions of Dollars)

Issuer	Offer Date	Ratings	Structure (Final/Zero)	Principal Amount	Price to Public	Gross Proceeds
BellSouth	12/6/95	Aaa/AAA	100/20	\$500.00	25.235%	\$126.175
Time Warner	1/11/96	Baa3/BBB-	40/20	200.00	17.039	34.077
General Motors	3/15/96	A3/A-	40/20	377.38	19.874	75.000
Korea Electric Power	3/27/96	A1/AA-	100/20	208.26	14.004	29.164

Source: Salomon Brothers Inc.

Investors attach significant value to long-duration, high-convexity assets.

### Why do investors find ZTF bonds attractive?

Pension funds and insurance companies require long-dated assets to match long-dated liabilities. While zero-coupon Treasuries have a long duration and are plentiful, the availability of long-duration corporate spread product is limited. For this reason, corporate ZTF bonds satisfy a natural demand for high-duration corporate securities (see Figure 20). Furthermore, fixed-income investors have become increasingly aware of and concerned about the "negative convexity" of mortgage-backed securities and callable corporate bonds in their portfolios. The high convexity of the ZTF structure acts as a natural hedge to negative convexity elsewhere in a portfolio.<sup>11</sup>

Figure 20. Example of the Duration/Convexity of Zero-To-Full Bonds

Structure	Coupon	Duration	Convexity
30 NC/L	7.75%	11.6	2.2
40 NC/L	7.85	12.2	2.6
50 NC/L	7.95	12.3	2.8
100 NC/L	8.05	12.4	3.0
100/20 ZTF	8.40	31.1	11.0

Source: Salomon Brothers Inc.

By bifurcating long bonds into building blocks, issuers reduce cost.

### How have non-U.S. issuers benefited from ZTF bonds?

A non-U.S. borrower could expect to achieve savings on the order of approximately 15 basis points by bifurcating a "century" (100-year) bond into a ZTF and a 20-year "level-pay" amortizing structure, a portfolio that exactly replicates the cash flows of the original century bond (see Figure 21). (Note that we have assumed the issuer is a non-U.S. entity that is not subject to U.S. tax regulations, due to a recent Treasury Department proposal of December 7, 1995 that seeks to limit debt maturities to 40 years. However, a recent joint statement from Congressman Archer and Roth suggested that the effective dates "will be no earlier than the date of appropriate congressional action.")

Figure 21. Example of a Synthetic 100-Year Bond for a Non-U.S. Issuer

Structure	Coupon	Duration	Convexity
100 NC/L	8.05%	12.4	3.0
20-Year Amortizer	7.05	7.6	0.9
100/20 ZTF	8.40	31.1	11.0
Combined Structure	7.88%	12.7	3.2
Relative Value	-17bp	0.3	0.2

Source: Salomon Brothers Inc.

<sup>11</sup> In general, convexity is good for portfolio managers. It means that for an equal change in rates (up or down) the magnitude of the investor's price gain is greater than his loss.



On March 27, 1996, Korea Electric Power issued 100-year of ZTF bonds and 20-year amortizing notes with total gross proceeds of approximately \$200 million.

**How have U.S. issuers benefited from ZTF bonds?**

The first three U.S. issuers of ZTF bonds combined the ZTF with three different "short" tranches to capture different characteristics of a long-dated security (see Figure 22). Combining the ZTF with an amortizing debenture replicates the pretax cash flow pattern of a traditional bullet exactly. However, an issuer can enhance the arbitrage benefit of the ZTF by using a bullet security as the shorter tranche. This approach can be used to match the duration of a traditional long bond without replicating the precise cash flow pattern.

**Figure 22. Alternative Approaches to Synthetic Long Bonds (Millions of Dollars)**

Issuer	Offer Date	Ratings	Short Structure	Long Structure	Structure Gross Proceeds	Short Total Gross Proceeds
BellSouth	12/6/95	Aaa/AAA	20-Year Amortizer	100/20	\$373.936	\$500.111
Time Warner	1/11/96	Baa3/BBB-	12-Year NC/L	40/20	165.923	200.000
General Motors	3/15/96	A3/A-	10-Year NC/L	40/20	300.517	375.517

Source: Salomon Brothers Inc.

**What is the tax and accounting treatment of ZTF bonds?**

Like any "original issue discount" security, the issuer of a ZTF bond recognizes "phantom" interest expense over the noncash period. The total interest expense of a ZTF grows over the noncash period and then grows at a significantly slower pace over the cash-pay period. The noncash interest expense generates tax benefits for the issuer, although no cash is paid out.

If the 40/20 ZTF is combined with a 20-year amortizing note, the combined interest expense actually increases over time.<sup>12</sup> In addition, the amount contributed to the balance sheet by the portfolio falls initially and then rises in the back years. Because the interest expense and, hence, the tax benefits of the package are back-loaded, the structure creates a small tax disadvantage for the issuer.

**ZTF Bonds: A new fixed-income asset class.**

The ZTF structure fills a gap in the fixed-income portfolio manager's toolbox. By creating a long-duration, high-convexity corporate security, investors can more efficiently manage the key characteristics of their portfolio. Issuers, in turn, benefit by reducing the interest expense requirements of a long-term financing package.

<sup>12</sup> Recall that the 40 level semiannual payments of a 20-year amortizing note consists of rising principal and declining interest components in the same fashion as a mortgage.

---

## LIABILITY MANAGEMENT TRENDS

Howard Hiller  
(212) 783-3703  
Marwan Marshi  
(212) 783-4444

Companies that expect to be net cash flow generators for an extended period of time may decide to use that cash to reduce debt. Financial managers then need to assess which debt obligations to target. We describe a simple decision framework that incorporates the unique characteristics of a cash-financed buyback of a company's outstanding term debt.

**Excess cash may tax shareholder patience.**

Cash can be a mixed blessing. Companies that generate significant cash flow may feel shareholder pressure to put that cash to work quickly or suffer the wrath of irate equity investors. Although cash on the balance sheet may be a "high-class" problem, management may quickly become the target of activist shareholders seeking a more rapid distribution of corporate wealth.

**Cash can be used to bolster the capital structure by paying down debt.**

*Excess cash* is what is left after cash is used to pay interest expense, dividends, taxes, and capital spending requirements. Financial managers that expect persistent excess cash flow have a number of options: hoard cash, use it to finance acquisitions or shrink the total capitalization of the company. The latter can be accomplished by buying common stock, retiring commercial paper/bank debt or repurchasing outstanding bonds. Many companies view the strengthening of the capital structure as a key corporate goal, in order to both enhance financial flexibility and improve bond ratings. For these companies, debt reduction may be an attractive alternative. A systematic approach to debt reduction raises a number of issues:

**A short check list for corporate bond buyers.**

- Is the traditional net-present-value analysis of bond refundings appropriate?
- Should the company retire short-term or long-term debt?
- What is the economic/tax/accounting impact of buying long-term debt?
- How should debt buyback targets be prioritized: premium versus discount, short versus long, callable versus noncallable?

**Issuers buying bonds with cash prefer high yields to low yields.**

It is almost self-evident that issuers refinancing debt through a *bond call* or a *tender offer* prefer lower rates to higher rates. Even in a tender offer, where lower (short-term) rates will increase the cost of tendering, correspondingly lower long-term rates on the new refinancing security will more than overwhelm this effect in net-present-value (NPV) terms, and enhance the overall economics of the transaction. The traditional NPV analysis uses a discount rate that corresponds to the maturity of the target outstanding issue.

None of this is obvious (or necessarily true) for *cash-financed* buybacks. In fact, we would argue that issuers using cash to buy bonds are bond market "bears" that prefer to buy bonds at high yields and low prices, the exact opposite of issuers that expect to refinance buybacks in the long-term debt market. This reversal of logic is a pragmatic consequence of the fact that cash buybacks do not involve a debt issuance at all. Companies that expect to be cash-flow-negative in a period of five years, may view that time period as a natural horizon for an NPV analysis, and the determinant of the discount rate.

Tax and accounting may drive choice of bond targets.

The corporate buyer of its own securities is distinguished by both tax and accounting treatment. The issuer is the only buyer of its debt that will recognize a tax event and an accounting item at the time of repurchase (see Figure 23): Premium debt generates a tax benefit and an accounting loss and discounted debt generates a tax liability and an accounting gain.

**Figure 23. Tax and Accounting Impact of Debt Repurchase of \$100 Par Amount: Premium versus Discount**

Issue	Price at 7% Yield	Gain (loss)	Pretax Benefit/(Liability)	Tax After-Tax Gain/(Loss)
9% due 2006	114.21%	\$(14.21)	\$4.97	\$(9.24)
5% due 2006	85.79	14.21	(4.97)	9.24

Assumes a book basis of par and a tax rate of 35%.  
Source: Salomon Brothers Inc.

Economics suggest that companies should target premium bonds . . .

The traditional Net Present Value economics of repurchasing bullet bonds is relatively easy to calculate. From an issuer's perspective, the value of debt retirement is calculated by comparing the *after-tax present value* of the after-tax debt service requirements at the issuer's after-tax cost of funds with the *after-tax cost* of retirement (see Figure 24).

**Figure 24. Economic Impact of Debt Repurchase: Premium versus Discount**

Issue	Price at 7% Yield	After-Tax Cost	After-Tax Present Value (a)	After-Tax Economic Impact
9% due 2006	114.21%	109.24%	110.35%	1.11%
5% due 2006	85.79	90.76	89.65	(1.11)

<sup>a</sup> Assumes after-tax discount rate of  $(1-35\%) \times 7\%$ .  
Source: Salomon Brothers Inc.

. . . but accounting may argue for discounts.

Nonetheless, when management is sensitive to maximizing near-term earnings, the extraordinary loss associated with premium debt retirement can quickly rule out high-coupon debt candidates.

The main financial statement goals of a debt reduction program are to: (i) reduce interest expense and (ii) reduce leverage. The net income statement impact is calculated by comparing the eliminated interest expense to the foregone interest income (see Figure 25).<sup>13</sup> Again there is a tension between premiums and discounts. Premium debt captures greater income statement benefits but with less balance sheet impact.

**Figure 25. Interest Savings and Debt Reduction of Debt Repurchase Using \$100 Cash: Premium versus Discount**

Issue	Price at 7% Yield	Tax-Adj Price	Interest Income (a)	Interest Expense	Interest Savings	Debt Reduction (per \$100 Cash)
9% due 2006	114.21%	109.24%	\$5.50	8.24%	\$2.74	\$91.54
5% due 2006	85.79	90.76	5.50	5.51	0.01	110.18

<sup>a</sup> Assumes cash investment rate of 5<sup>1</sup>/<sub>2</sub>%.  
Source: Salomon Brothers Inc.

<sup>13</sup> If a company can invest cash at its own commercial paper (CP) rate, the retirement of bank debt or CP is neutral from an income statement perspective.

Given the drawbacks of high-premium and deep-discount buyback programs, many issuers have decided to spread their cash wealth among a number of different issues to achieve a "balanced" result, with little overall premium or discount. In general, focusing a buyback program on a single issue increases the risk of market "noise" and eventual upward price pressure.

**A brief caveat for corporate bondbuyers.**

While accounting calculations provide some insight into the impact of debt repurchase, financial managers should be wary of the long-term consequences. Companies that find the excess cash situation will reverse in two-three years, may want to focus on shorter-term debt retirement in order to minimize the interest rate risk that will be faced at the end of a relatively short horizon.

**High-coupon callable bonds represent attractive value for issuers.**

For issuers with outstanding higher-coupon callable bonds, these securities will typically offer the highest yields and, hence, the greatest interest expense savings. Furthermore, these securities have cheapened as investors have become increasingly sensitive to the underperformance of these securities in a rallying market and the recent "charge" that the rating agencies assign to these securities in assessing portfolio risk. (See "Why do investors find ZTF bonds attractive?" in the *Fixed-Income Market Trends* section.)

The valuation of high-coupon callable bonds requires the technology of option-adjusted spread (OAS), a topic that we will return to in the next quarter's report.

**FIXED-INCOME DERIVATIVE TRENDS**

Shalabh Mehrish  
(212) 783-7327

**Question 14**

*How can an issuer lock in an attractive credit spread without locking in the Treasury component?*

**Answer 14**

The issuer enters into a Spreadlock Agreement on the date of a corporate bond issuance to "unlock" the Treasury component on its new issue coupon.

A spreadlock allows the issuer to issue today and benefit from a subsequent rally in the Treasury market.

The issuer would execute its bond issue in the usual fashion and receive the proceeds at settlement and enter into a spreadlock to "unlock" the Treasury component. The issuer would have a set period (e.g. six months) to lock-in a Treasury rate. The issuer can lock in the Treasury rate on its issue all at once or in several pieces.

When the issuer locks-in a Treasury rate, a compensating payment is made by Salomon or the issuer that adjusts the issuer's all-in-cost to the level that would have prevailed if the Treasury benchmark had been at the locked-in rate at the new issue date.

**Figure 26. Advantages and Disadvantages of a Spreadlock Agreement**

Advantages	Disadvantages
Lock-in new issue spread	Exposed to a potential rise in Treasury rates after new issue date
Receive proceeds today on bond issue	Potential cash payment in settling the Spreadlock
No premium paid — receive positive carry in a steep yield curve	
Synthetic MTN program — can average into a financing rate	

Source: Salomon Brothers Inc.

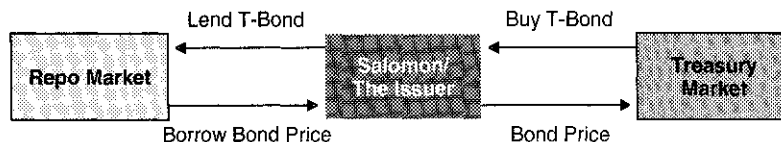
**The Mechanics of the Spreadlock Agreement**

To understand the mathematics of the transaction, it is best to understand how Salomon's positive carry in hedging the transaction is passed along to the issuer in terms of the Forward Drop.

**Today**

Treasury Market: Buy the T-Bond which is financed in the repo market

Repo Market: Lend T-Bond and borrow cash at repo rate



**Forward Date**

Treasury Market: Sell the same T-bond as lent to the repo market

Repo Market: Receive back the T-Bond lent and pay cash back plus repo interest



**Indicative Pricing**

Given the steepness of the yield curve, the Spreadlock Agreement has a positive carry for the issuer. The issuer earns the coupon on the Treasury and pays the short-term financing rate. The "Forward Drop" indicates the per annum basis point pick-up for the issuer (see Figure 27).

**Figure 27. Ten-Year Treasury Forward Drop**

	Spot	3 months	6 months
10-year U.S. Treasury (5.625% due 2/2006)	6.55%	5 bp	9 bp

For example, today the issuer issues its notes with the ten-year Treasury at 6.55% and enters into a Spreadlock. If Treasuries are unchanged when the issuer unwinds the Spreadlock in three months, the issuer effectively earns five basis points due to the positive carry on the Spreadlock trade.

The Spreadlock is an excellent way of averaging into a financing rate over a period of time rather than locking-in ten-year financing on one particular day.

According to traditional corporate finance theory, a firm's optimal debt-to-equity mix depends on four main factors:

- (1) The required market returns for debt and equity;
- (2) The rates at which debt and equity are taxed;
- (3) Potential or perceived bankruptcy costs; and
- (4) Agency costs — that is, conflicts of interest among managers, shareholders, and creditors.

In the United States and in many other countries, interest payments are tax deductible (whereas returns to equity are not), implying that companies should issue as much debt as possible. On the other hand, increasing amounts of leverage increase a company's bankruptcy probability and progressively push up the cost of incremental borrowings. Moreover, agency cost theories suggest that increasing leverage increases a firm's value particularly because of the monitoring or policing effects that debt has on corporate managers. When making the debt-to-equity choice, corporate managers balance off factors (1), (2), and (4), which argue for more debt, against factor (3), which argues for more equity.

However, additional factors, including signaling issues and governmental policies, frequently make matters more complicated. For example, corporate managers often have more information about their firms' prospects than investors do. As a result, fixed-income and equity investors are constantly trying to search for and interpret signals from management that may convey information. Managers, in turn, monitor investors' actions. For example, managers who think the markets are undervaluing their firms will be reluctant to raise outside capital — thereby financing investments with internally generated funds.

Also, a recent National Bureau of Economic Research study suggests that firms with stable-to-low growth opportunities should consider issuing debt to benefit their shareholders. The authors of the study reason and empirically demonstrate that, for firms with marginal growth opportunities and poor performance, leverage acts as a brake on their growth — which might prove beneficial to shareholders. This reasoning is in line with finance theories that emphasize the disciplinary role of debt.

On the other hand, high-growth companies seem to exhibit no significant correlation between their growth opportunities and their leverage ratios. This finding suggests that growth itself is not an important factor affecting the debt-to-equity choice for high growth companies, while growth is an important factor affecting the debt-to-equity choice for low-growth companies.

These theories do a reasonably good job of explaining behavior of firms in industrialized countries. A recent International Finance Corporation study finds that emerging-market firms rely on internally generated funds much less than developed-market firms. In addition, emerging-market firms tend to rely on equity much more than debt — primarily as a result of government incentives to urge emerging-market companies to use debt.

With the increasing globalization of the world economy and the financial markets, these trends are likely to change, especially in the emerging economies. Regardless of the choice, however, the theories and the empirical evidence suggest that management should always do the best it can in terms of disseminating accurate information to both bond and shareholders. Such a full-disclosure strategy is most likely to enhance shareholder value in the long term.

- International Market Roundup*, John Lipsky, et al., Salomon Brothers Inc, March 29, 1996.
- Bond Market Roundup: Strategy*, Janet Showers, et al., Salomon Brothers Inc, March 29, 1996.
- Comments on Credit*, John Lipsky, et al., Salomon Brothers Inc, March 29, 1996.
- Structured Products Weekly*, Ravit Efraty, et al., Salomon Brothers Inc, March 29, 1996.
- Issuing Put Bonds Synthetically to Reduce Financing Cost*, Samir Shah, et al., Salomon Brothers Inc, February 6, 1996.
- Century Bonds - Send a Signal to the Market*, Niso Abuaf, et al., Salomon Brothers Inc, November 30, 1995.
- The Accelerated Share Repurchase*, Chris Innes, et al., Salomon Brothers Inc, November 1995.
- Challenges in the Global Capital Markets*, Andrew MacInnes, et al., Salomon Brothers Inc, September 1995.
- The Issuer's Guide to DECS*, Andrew MacInnes, et al., Salomon Brothers Inc, July 1995.
- Repackaging Corporate Assets: Creating Shareholder Value Through Carve-Outs, Spin-Offs, Split-Offs and Targeted Stock*, Andrew MacInnes, et al., Salomon Brothers Inc, May 1995.
- Stock Buybacks: Strategy and Tactics*, Peter Blanton, et al., Salomon Brothers Inc, November 1995.
- The Issuer's Guide to Equity Carve-Outs*, Peter Blanton, et al., Salomon Brothers Inc, July 1994.
- Equity Put Warrants: Reducing the Cost and Risks of a Stock Repurchase Program*, Kevin Thatcher, et al., Salomon Brothers Inc, April 1994.
- Understanding the Value of Volatility: Mobilizing an Undermanaged Corporate Asset*, Joe Elmlinger, et al., Salomon Brothers Inc, January 1994.
- Bulletin on DECS: Mandatorily Convertible Securities*, Larry Wieseneck, et al., Salomon Brothers Inc, January 1994.
- The Issuer's Guide to Convertible and Equity-Linked Securities*, Peter Blanton, et al., Salomon Brothers Inc, October 1993.
- Which 30-Year Benchmark?*, Janet Showers, et al., Salomon Brothers Inc, October 1993.
- Bulletin: 50- and 100-Year Bonds*, Eric Lindenberg, et al., Salomon Brothers Inc, September 1993.



*Ready or Not: FAS 115 and Marketable Securities Accounting*, Arthur Fliegelman, Salomon Brothers Inc, August 1993.

*Hedging and Financing Strategies for the Corporate Borrower*, Janet Showers, et al., Salomon Brothers Inc, February 1989.

*Efficiency and Optimal Bond Refunding*, Salomon Brothers Inc, March 1987.

---

Salomon Brothers Inc and/or its affiliates ("The Firm") have an investment banking relationship with certain of the companies noted in Figures 9, 10, 11, 12, 14, 15, 19 and 22. Within the past three years, the Firm has managed a registered public offering of securities for a number of these issuers. The Firm may at any time issue options on such securities of any firm listed in this report. The Firm actively trades all such options and securities for its own accounts and those of its customers. Accordingly, we may at any time have a long and/or short position in such securities.

---

Although the information in this report has been obtained from sources that Salomon Brothers Inc believes to be reliable, we do not guarantee its accuracy, and such information may be incomplete or condensed. All opinions and estimates included in this report constitute our judgment as of this date and are subject to change without notice. This report is for information purposes only and is not intended as an offer or solicitation with respect to the purchase or sale of any security. This publication has been approved for distribution in the UK by Salomon Brothers International Limited, which is regulated by SFA.

---

## Salomon Brothers

---

### Salomon Brothers Inc

Atlanta (404) 827-7600  
Boston (617) 346-9000  
Chicago (312) 876-8700  
Los Angeles (213) 253-2200  
New York (212) 783-7000  
San Francisco (415) 951-1777  
Seoul 822-754-6500  
Taiwan 886-2-719-6647

### AFFILIATES

**Bangkok** 662-263-3800  
Salomon Brothers Asia Pacific Ltd.\*\*

**Beijing** 8610-505-5260  
Salomon Brothers China Limited

**Frankfurt** 49-69-2607-0  
Salomon Brothers AG

**Hong Kong** 852-2501-2000  
Salomon Brothers Hong Kong Limited  
Salomon Brothers Hong Kong Futures Limited  
Salomon Brothers Hong Kong Nominee Limited  
Salomon Brothers Asia Management Services Limited

**London** 44-1-71-721-2000  
Salomon Brothers International Limited (SFA Member)  
Salomon Brothers U.K. Limited (SFA Member)  
Salomon Brothers U.K. Equity Limited (SFA Member)

**Madrid** 34-1-310-3000  
Salomon Brothers International Limited\*

**Melbourne** 61-3-9-650-8555  
Salomon Brothers Australia Limited\*

**Milan** 39-2-430-0911  
Salomon Brothers SIM S.p.A.

**Osaka** 81-6-252-9611  
Salomon Brothers Asia Limited\*\*

**Paris** 33-1-47-63-7907  
Salomon Brothers SA

**Singapore** 65-359-0200  
Salomon Brothers Singapore Pte. Limited

**Sydney** 61-2-232-4455  
Salomon Brothers Australia Limited

**Taipei** 886-2-719-6647  
Salomon Brothers Taiwan Limited

**Tokyo** 81-3-5574-4111  
Salomon Brothers Asia Limited  
Salomon Brothers AG\*

**Toronto** (416) 866-2300  
Salomon Brothers Canada Inc

**Zug** 41-1-366-4111  
Salomon (International) Finance AG

**Zurich** 41-1-366-4111  
Salomon Finanz AG

**Representative Office\***  
Branch Office\*\*

First Class Mail  
US Postage  
Paid  
New York, NY  
Permit No 8155

X P G  
(211)  
1996-R1439



Printed on recycled paper