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An appropriate subtitle for this article might well be "The Evolution Lives! Long Live the Evolution!" Previous articles in this journal have described innovations in financial security design and the forces that give rise to such innovations.[1] In this article, we expand upon and update those articles by documenting changes over the past 30 years in the way U.S. public corporations finance themselves both in public and private security markets.[2]

The past articles have focused mainly on innovations in the kinds of securities issued. But major changes have also occurred in the *way* securities are issued, and in the national markets *where* they are issued. Traditional registered offerings have been partly displaced by shelf registered offerings and Rule 144A private offerings. And once exclusively domestic U.S offerings are increasingly being supplemented by foreign market offerings by U.S. companies, and by simultaneously domestic and foreign offerings. In the research summarized in this article, we tracked not only the kinds of securities (both by number and by dollar amount) issued each year by U.S. public companies between 1970 and 1997, but also their method of issuance and the locale of the offerings.

In a 1992 article in this journal entitled "An Overview of Corporate Securities Innovation," John Finnerty traced innovations (through the first half of 1991) in the design of securities issued by U.S. corporations by identifying the year in which the design first appeared.[3] Our study extends that article's findings in two ways: (1) by updating developments in the design of corporate securities through the end of 1997; and (2) by presenting an annual time series of security issues classified according to the design of the security from 1970 through 1997.

Our updating of new developments in security design provides clear evidence that the pace of innovation in securities design has not slackened. For example, whereas Finnerty identified 40 types of securities that were first issued by U.S. companies in the 1980s,[4] our study found 34 kinds that were first issued during the first eight years of the 1990s.[5] Among these securities were equity indexed bonds, commodity indexed preferred stock, convertible exchangeable notes, and dividend enhanced convertible securities.

Our study also attempted to identify which innovations have prospered over time and which have languished or even disappeared. For example, the first non-convertible floating rate note (FRN) was issued in 1974. The use of FRNs increased steadily throughout the next 24 years and, in 1997 alone, U.S. public companies issued 1,411 FRNs with an aggregate face value of $139.8 billion. By contrast, after the first convertible adjustable rate bond (CARB) came to market in 1981, ten additional CARBs were issued during the remainder of the 1980s, and none have been issued since. Our findings suggest that financial innovation is a trial and error process in which "failure is more likely than not."[6]

1. These include John Finnerty, "An Overview of Corporate Securities Innovation," *Journal of Applied Corporate Finance*, 4, 4 (1992), 25-39; Merton Miller, Financial Innovation: Achievements and Prospects", *Journal of Applied Corporate Finance*, 4, 4 (1992), 4-11; and Peter Tufano, "Securities Innovations: A Historical and Functional Perspective", *Journal of Applied Corporate Finance*, 7, 4 (1995), , 90-103.

2. Our data are obtained from Securities Data Corporation and include public and private offerings by U.S. companies whose common stock is publicly traded.

3. Finnerty (1992).

4. We excluded from this count various types of mortgage-backed securities and collateralized mortgage obligations because these more closely resemble asset sales than corporate financing.

5. Any classification system is subjective. For consistency, wherever possible, we adopt Finnerty's classification scheme. In some cases, that was not possible and in others, we determined that a slightly modified classification structure better captured the flavor of the data.

6. A finding that that echoes Tufano (1995), cited above.

CORPORATE FINANCING IN THE AGGREGATE—WHERE, HOW, AND HOW MUCH?

Publicly traded U.S. companies can issue securities exclusively to U.S. investors, exclusively to non-U.S. investors, or simultaneously to U.S. and foreign investors. The three panels of Table 1 display the number and dollar amount of security offerings for each year from 1970 through 1997. Panel A shows public and private offerings in the U.S.; Panel B shows public and private offerings made simultaneously in the U.S. and one or more foreign countries; and Panel C reports offerings made in one or more foreign countries. Before describing the different types of securities issued, we focus on the data in Table 1 to provide an overview of offerings in the aggregate by offering technique and locale.

U.S. Domestic Offerings

Within the U.S. market, securities can be issued in either the public or private market. Any security that is registered with the SEC is considered to be issued in the public security market. Unregistered securities are considered to be issued in the private security market.

Prior to March of 1982, once a company had decided to issue a security in the public market, the company prepared and filed with the SEC a registration statement and prospectus describing the terms of the security and the dollar amount of funds to be raised. The company then waited for completion of an SEC review before issuing the security.

In March of 1982, the SEC implemented Rule 415. Under Rule 415, public companies that meet certain size and credit requirements are allowed to register a "generic" statement with the SEC. This generic registration statement (form S-3) includes the company's basic financial information and the amount of securities the firm expects to issue within the next two years, although the life of the registration statement is indefinite. At the time the company decides to issue a specific security, the company is required to file a prospectus supplement that discloses the specific terms and dollar amount of the security to be issued and incorporates by reference other financial information filed by the company with the SEC. Upon filing this information, the security can be issued. This procedure is popularly known as shelf registration because, in effect, the issuer puts its new securities "on the shelf" until the funds are actually needed.

As shown in Panel A of Table 1, in 1983 shelf registered issues accounted for 20% of the number of securities offered and 37% of the total dollar amount of funds raised in public offerings. In 1997, shelf registered offerings accounted for 49% of the securities issued and 46% of the dollar amount of funds raised in the *public* market.

A similar transformation occurred in the private security market with the introduction of Rule 144A in 1990. Securities issued in the private security market cannot be traded on an organized exchange. Furthermore, prior to Rule 144A, the original investor in an unregistered security could not trade the security in any venue for at least two years. Following that two-year period, the security could only be traded among "sophisticated" investors. Rule 144A allows unregistered securities to be traded among "sophisticated" investors immediately after issuance. According to SEC guidelines, a sophisticated investor is one who has the capacity to (1) evaluate the risk and return characteristics of the security and (2) bear the financial risk contained in the security.

As shown in Panel A of Table 1, in 1991 Rule 144A offerings accounted for 13% of the number of private securities issued and 19% of the total dollar amount of funds raised in private offerings. In 1997 Rule 144A offerings accounted for 64% of the securities issued privately and 83% of the dollar amount of funds raised in the private market.

Simultaneous U.S. Domestic and Foreign Market Offerings

Panel B parallels Panel A in that offerings made simultaneously in the U.S. and one or more foreign countries are classified according to whether the offering is public or private and whether it is a shelf or 144A offering. This panel illustrates that, although simultaneous offerings have grown over time in both absolute number and dollar amount, they still amount to only a modest fraction of purely domestic offerings. In 1997, the $855 billion raised by U.S. public companies through purely domestic offerings was 18 times the $47 billion raised through simultaneous offerings. Additionally, this panel illustrates that the growth in shelf and 144A simultaneous offerings mirrors that shown in Panel A.

In the past 30 years, major changes have occurred not only in the kinds of securities issued, but also in the *way* securities are issued and in the national markets *where* they are issued.

TABLE 1 ■ NUMBER AND DOLLAR AMOUNTS (IN $ BILLIONS) OF SECURITY ISSUES BY U.S. CORPORATIONS CLASSIFIED BY METHOD OF ISSUANCE[1, 2]

70/71	72/73	74/75	76/77	78/79	80/81	82/83	84/85	86/87	88/89	90/91	92/93	94/95	96/97
PANEL A: U. S. CORPORATE OFFERINGS IN THE U.S. DOMESTIC MARKET													
■ All Offerings/Number of Issues													
1125/1561	**1692/566**	492/708	**669/525**	547/554	**1015/1605**	1706/2755	**1752/2401**	3479/2850	**2645/2508**	2140/3652	**4176/5501**	4051/5232	**6747/9157**
/Proceeds ($ billions)													
27.5/36.2	**31.5/21.1**	28.7/39.0	**34.7/27.3**	24.2/28.9	**51.9/58.0**	70.8/101.9	**85.6/144.0**	245.0/212.1	**221.1/245.3**	190.4/305.2	**377.4/494.2**	348.6/481.1	**639.1/855.0**
■ Public Offerings (Excludes Shelf)/Number of Issues													
1125/1561	**1692/566**	492/708	**669/525**	547/554	**1015/1140**	926/1640	**860/1200**	1797/1293	**728/834**	675/1680	**1978/2725**	1791/2579	**3270/4099**
(Excludes Shelf)/Proceeds ($ billions)													
27.5/36.2	**31.5/21.1**	28.7/39.0	**34.7/27.3**	24.2/28.9	**51.9/47.3**	40.8/51.9	**33.6/60.5**	98.1/83.1	**74.8/80.9**	71.1/145.9	**186.0/234.6**	167.8/232.2	**293.9/390.0**
■ Shelf Registered Public Offerings/Number of Issues													
						193/406	**255/386**	631/490	**397/396**	394/635	**913/1213**	1394/1906	**2686/3972**
/Proceeds ($ billions)													
						15.7/30.0	**27.7/44.6**	88.5/66.8	**58.0/64.5**	62.4/107.4	**142.9/196.9**	148.3/208.3	**274.8/330.1**
■ Private Offerings (Excludes Rule 144A)/Number of Issues													
			Beginning of SDC data		**–/465**	587/709	**637/815**	1051/1067	**1520/1278**	1057/1168	**1006/1036**	696/452	**336/394**
/Proceeds ($ billions)													
			Beginning of SDC data		**–/10.7**	14.2/20.0	**24.3/38.8**	58.4/62.1	**88.3/99.9**	54.9/42.1	**32.6/30.2**	20.1/17.8	**19.3/22.3**
■ Rule 144A Private Offerings/Number of Issues													
										14/169	**279/527**	170/295	**455/692**
/Proceeds ($ billions)													
										1.9/9.7	**15.9/32.5**	12.5/22.8	**51.1/112.6**
PANEL B: US CORPORATE OFFERINGS MADE SIMULTANEOUSLY IN THE US AND IN ONE OR MORE FOREIGN MARKETS													
■ All Offerings/Number of Issues							**1/4**	35/55	**37/51**	84/175	**196/233**	190/184	**226/230**
/Proceeds ($ billions)													
							0.0/0.6	6.8/7.3	**3.7/5.3**	14.5/31.5	**36.3/42.4**	39.0/40.3	**41.4/47.3**
■ Public Offerings (Excludes Shelf)/Number of Issues							**1/3**	35/55	**37/50**	82/169	**192/202**	137/144	**185/165**
(Excludes Shelf)/Proceeds ($ billions)													
							0.0/0.6	6.8/7.3	**3.7/5.1**	14.0/31.1	**35.9/35.8**	23.3/31.7	**35.1/34.7**
■ Shelf Registered Public Offerings/Number of Issues									**–/1**	– /1	**3/21**	44/22	**10/36**
/Proceeds ($ billions)													
									–/0.2	– /0.1	**0.4/6.0**	14.2/7.7	**4.5/11.2**
■ Private Offerings (Excludes Rule 144A)/Number of Issues							**–/1**			1/2	**1/–**	3/1	
/Proceeds ($ billions)													
							–/0.0			0.3/0.2	**0.0/–**	0.1/0.0	
■ Rule 144A Private Offerings/Number of Issues										1/3	**–/10**	6/17	**31/29**
/Proceeds ($ billions)						0.1/0.1	**–/0.6**	1.3/0.8	**1.8/1.5**				
PANEL C: US CORPORATE OFFERINGS IN FOREIGN MARKETS (EXCLUDES SIMULTANEOUS OFFERINGS IN US)													
■ All International Market Offerings (Excluding Offerings Simultaneously in US)/Number of Issues													
				Beginning of SDC data		– /17	**97/325**	322/172	**122/111**	103/124	**114/158**	223/326	**340/306**
/Proceeds ($ billions)													
				Beginning of SDC data		– /1.0	**10.2/35.5**	37.8/17.9	**15.0/14.8**	10.5/15.0	**16.0/22.7**	26.9/38.2	**50.0/57.8**
■ International Market Offerings in US Dollars/Number of Issues													
						– /7	**68/190**	182/97	**52/58**	29/48	**49/92**	81/133	**104/96**
/Proceeds ($ billions)													
						–/0.5	**8.6/26.9**	26.8/12.2	**8.5/9.9**	4.7/7.2	**9.0/14.9**	13.7/21.2	**21.5/26.6**
■ International Market Offerings Not in US dollars/Number of Issues													
						– /10	**29/135**	140/75	**70/53**	74/76	**65/66**	142/193	**236/210**
/Proceeds ($ billions)													
						– /0.5	**1.6/8.7**	11.1/5.8	**6.5/4.9**	5.8/7.8	**7.0/7.8**	13.2/17.0	**28.5/31.3**

1. For Private Offerings SDC began collecting data in 1981.
2. For the international offerings, SDC began collecting data in 1978 for Japan,1983 for Euro and Foreign Markets, 1986 for Canada, 1989 for the United Kingdom, 1990 for India, 1991 for Asia Pacific, Australia, Continental Europe, and Latin America, and 1994 for Korea.

U.S. Corporate Foreign Offerings

In Panel C, offerings made outside the U.S., (starting in 1983, the first year for which SDC data are available) are classified according to whether they are denominated in U.S. dollars or a foreign currency. To expand the geographic scope of their offerings, U.S. companies can offer securities in international markets exclusively or they can simultaneously issue securities in both domestic and international markets. Total international market offerings grew quickly during the mid-1980's, slowed during the late 1980s and early 1990s, and have shown continued growth in the mid-1990s. In 1997, U.S. companies raised $58 billion in 306 bond issues outside the U.S. When international offerings are combined with simultaneous offerings, the volume of these offerings totaled $105 billion, or 11% of the total funds raised by U.S. corporations in that year.

Besides expanding the geographic scope of their securities offerings, U.S. companies have also changed their currency denomination. In the seven-year interval from 1983-1989, U.S. corporations raised $93.4 billion in U.S. dollar-denominated international market offerings, but only $39.1 billion in non-U.S. denominated issues. Then, for the first time, in 1990 the volume of foreign currency-denominated international offerings exceeded dollar-denominated overseas issues. And, from 1990-1997, the $237 billion raised by international offerings has been almost equally divided between foreign-currency and dollar-denominated issues. Of the total amount issued in 1997, 54% were denominated in a currency other than U.S. dollars.

Why the growing use of foreign-currency debt? For companies with significant international revenues, issuing debt with interest and principal denominated in matching currencies can reduce cash flow volatility stemming from exchange rate movements.

CHANGES IN SECURITY DESIGN

In tracking the process of securities innovation, we started by classifying all securities employed by corporate issuers since 1970 into six generic categories: (1) common stock, (2) non-convertible debt, (3) convertible debt, (4) non-convertible preferred stock, (5) convertible preferred stock, and (6) asset-backed securities. Then, within each of the six categories, all securities were identified as either "traditional" or "innovative."

For our purposes, a traditional non-convertible debt is any callable or noncallable non-convertible bond or note with a fixed periodic cash coupon payment, a fixed final maturity date, and fixed repayment schedule. A traditional convertible debt is defined similarly, except that the security is convertible into the common stock of the issuer at the option of the investor. Convertible and non-convertible bonds or notes with any other feature are categorized as innovative.

A traditional non-convertible preferred stock is any callable or noncallable non-convertible preferred stock with a fixed periodic cash dividend and no fixed maturity date.[7] A traditional convertible preferred stock is defined similarly, except that the security is convertible into the common stock of the issuer at the option of the investor. Convertible and non-convertible preferred stock with any other feature are considered innovative.

Asset-backed securities do not fit neatly into our classification scheme because of the absence of a "traditional" asset-backed security. Thus, by definition, all asset-backed securities are innovative. Conversely, all common stocks, because of their of their homogeneity, are treated as traditional.[8]

The results of our classification scheme are presented in Table 2. In 1970, of the 1,124 securities issued, only one—an offering of zero coupon convertible debt—is classified as innovative. Over the period 1970 through 1975, 12 of 6,132 issues are identified as innovative. But, as we move into the 1980s, the pace of innovation begins to quicken. In 1985, 317 of 2,405 (or 13%) issues are classified as innovative. And, in 1997, 2,644 of the 9,387 (28%) issues fall into the non-traditional category. Expressed in dollar terms, $314.5 billion of the $902.3 billion (or 35%) raised through all 1997 offerings were accounted for by innovative securities.

The fraction of securities classified as traditional and innovative securities varies across the six generic categories. As we noted, there are no innova-

7. We do allow one deviation from this definition. Some preferred stocks do have modest sinking fund requirements. One example is a preferred with a fixed coupon rate and a sinking fund requirement of 2% per year. Given the minimal requirements of the sinking fund, we classify this as a traditional preferred.

8. Finnerty (1992) documents several innovations in common stocks. Several common stock innovations failed prior to issuance; however, two innovations that were brought to market include puttable common stock and callable common stock. The combined offerings of these securities includes only five offerings raising $200 million in capital.

The $237 billion raised by U.S. companies in overseas corporate debt offerings from 1990-1997 was almost equally divided between foreign-currency and dollar-denominated issues. For firms with significant international revenues, issuing debt with interest and principal denominated in matching currencies can reduce cash flow volatility stemming from exchange rate movements.

TABLE 2 ■ NUMBER AND DOLLAR AMOUNTS (IN $ BILLIONS) OF SECURITY ISSUES IN THE DOMESTIC U.S. MARKET CLASSIFIED BY TYPE OF SECURITY

70/71	72/73	74/75	76/77	78/79	80/81	82/83	84/85	86/87	88/89	90/91	92/93	94/95	96/97
ALL OFFERINGS													
■ Traditional/Number of Issues													
1124/1559	**1689/564**	492/704	**665/499**	519/512	**971/1539**	1539/2606	**1483/2088**	3150/2564	**2249/2057**	1796/3309	**3606/4518**	2821/3991	**5028/6743**
	/Proceeds ($ billions)												
27.5/36.2	**31.3/21.1**	28.7/38.9	**34.5/25.6**	21.7/24.3	**47.5/53.5**	59.1/88.9	**58.4/116.7**	214.3/183.5	**171.0/169.5**	128.7/240.0	**298.8/378.7**	204.9/332.8	**415.6/587.8**
■ Non-Traditional/Innovative/Number of Issues													
1/2	**3/2**	0/4	**4/26**	28/42	**44/66**	167/149	**270/317**	364/341	**433/502**	428/518	**766/1216**	1420/1425	**1945/2644**
			/Proceeds ($ billions)										
0.0/0.1	**0.2/0.0**	0.0/0.2	**0.2/1.8**	2.4/4.6	**4.4/4.5**	11.7/13.0	**27.2/27.9**	37.5/36.0	**53.7/81.1**	76.2/96.7	**114.9/157.9**	182.7/188.5	**264.9/314.5**
COMMON STOCK													
■ Traditional/Number of Issues													
611/989	**1222/289**	119/205	**251/185**	249/251	**515/769**	585/1506	**620/795**	1236/854	**477/535**	437/908	**1115/1518**	1057/1148	**1501/1240**
	/Proceeds ($ billions)												
4.3/11.5	**12.4/6.5**	2.7/6.6	**7.9/6.0**	5.9/5.5	**12.5/14.9**	16.6/37.1	**9.6/25.2**	41.9/35.8	**30.1/28.8**	21.0/54.3	**69.7/95.4**	53.9/73.3	**99.0/102.1**
NON-CONVERTIBLE DEBT													
■ Traditional/Number of Issues													
389/379	**319/214**	312/405	**327/246**	211/182	**299/588**	749/831	**712/1084**	1637/1463	**1691/1395**	1284/2243	**2239/2646**	1629/2746	**3298/5183**
	/Proceeds ($ billions)												
19.6/18.9	**14.8/11.8**	23.9/28.3	**23.7/16.8**	13.9/16.3	**28.0/31.5**	34.6/41.2	**43.0/83.9**	160.4/132.8	**136.5/132.5**	104.4/171.9	**203.8/258.0**	140.2/254.2	**283.7/444.9**
■ Non-Traditional/Innovative/Number of Issues													
– /1	**– /1**	– /3	**26/32**	27/42	**39/64**	149/89	**224/200**	223/223	**276/361**	254/301	**513/915**	1185/1082	**1408/1815**
			/Proceeds ($ billions)										
– /0.1	**– /0.0**	– /0.1	**1.8/2.2**	2.3/4.6	**4.2/4.4**	10.2/7.9	**24.0/18.3**	22.3/22.2	**32.7/50.8**	29.0/38.6	**63.7/104.5**	132.4/117.3	**154.0/203.7**
CONVERTIBLE DEBT													
■ Traditional/Number of Issues													
72/117	**73/12**	8/15	**24/16**	18/29	**89/105**	79/127	**66/149**	207/149	**33/56**	26/53	**78/105**	46/39	**95/94**
	/Proceeds ($ billions)												
2.4/3.7	**1.8/0.4**	0.4/1.2	**0.9/0.4**	0.3/0.6	**4.0/4.6**	3.1/6.0	**3.5/6.2**	9.4/9.5	**1.3/2.9**	1.4/4.5	**6.3/6.4**	3.1/1.7	**10.3/11.3**
■ Non-Traditional / Innovative/Number of Issues													
1/1	**3/1**				**4/2**	4/5	**10/16**	13/6	**11/14**	14/16	**12/25**	10/26	**31/23**
			/Proceeds ($ billions)										
0.0/0.0	**0.2/0.0**				**0.2/0.1**	0.2/0.2	**0.6/1.4**	0.9/0.2	**2.1/2.6**	3.7/3.8	**1.8/6.3**	2.6/5.4	**3.9/7.7**
NON-CONVERTIBLE PREFERRED STOCK													
■ Traditional/Number of Issues													
50/71	**71/49**	52/74	**57/44**	28/32	**41/56**	94/76	**42/17**	34/61	**40/41**	30/68	**119/178**	53/37	**101/189**
	/Proceeds ($ billions)												
1.2/1.9	**2.3/2.3**	1.6/2.4	**1.8/1.9**	1.3/1.3	**1.8/1.8**	4.3/2.2	**1.4/0.7**	0.8/2.9	**2.3/2.3**	1.3/6.0	**13.3/12.3**	4.7/2.3	**19.8/26.6**
■ Non-Traditional / Innovative/Number of Issues													
		– /1		– /1	**1 /–**	13/33	**22/66**	72/62	**86/58**	62/58	**124/120**	30/65	**90/128**
			/Proceeds ($ billions)										
		– /0.1		0.1/–	**0.0/–**	1.2/3.5	**1.8/4.5**	5.9/4.2	**5.6/5.2**	4.2/3.8	**7.4/6.2**	4.5/8.9	**21.5/19.6**
CONVERTIBLE PREFERRED STOCK													
■ Traditional/Number of Issues													
2/3	**4 /–**	1/5	**6/8**	13/18	**27/21**	32/66	**43/43**	36/37	**8/30**	19/37	**55/71**	36/21	**33/37**
	/Proceeds ($ billions)												
0.0/0.2	**0.0/**	0.0/0.4	**0.3/0.4**	0.3/0.6	**1.3/0.6**	0.5/2.4	**0.8/0.6**	1.8/2.5	**0.9/3.0**	0.6/3.2	**5.7/6.6**	3.0/1.2	**2.8/2.9**
■ Non-Traditional/Innovative/Number of Issues													
						1/22	**14/28**	41/25	**10/14**	5/17	**18/33**	17/15	**29/32**
			/Proceeds ($ billions)										
						0.1/1.4	**0.8/2.4**	3.2/2.5	**0.6/0.9**	0.9/5.1	**5.8/4.0**	2.5/2.3	**6.3/6.3**
ASSET-BACKED SECURITIES													
■ Non-Traditional/Innovative/Number of Issues													
							– /7	15/25	**50/55**	93/126	**99/123**	178/237	**387/646**
			/Proceeds ($ billions)										
							– /1.2	5.3/6.9	**12.7/21.6**	38.3/45.3	**36.3/36.9**	40.8/54.6	**79.2/77.2**

tive securities in the common stock category and there are no traditional securities in the asset-backed category. Among debt securities, traditional offerings outnumber innovative offerings every year in both number and dollar amount. In 1997, the $456.2 billion of traditional non-convertible and convertible debt offerings was 2.2 times the $211.4 billion issued in innovative debt securities. In the case of preferred stocks, by contrast, there are some years in which innovative offerings exceed traditional offerings. Between 1982 and 1997, $153 billion in straight and convertible preferred stock issues qualified as innovative issues while only $142 billion qualified as traditional issues. The tax advantage of preferred stock securities (i.e., 70% of dividends received are not taxable) may play an important role in the dominance of innovative preferred stock issues relative to traditional preferred stock issues. In addition to their tax advantage, preferred stock innovations like MIPS and QUIPS also feature variable dividend payments that reduce price volatility for investors and may allow issuers to manage interest rate risk.

Innovative Features

An innovation in the design of a security occurs when one of the basic features of the security is altered. According to our definition, a traditional debt security has a fixed periodic payment in U.S. dollars, a fixed repayment schedule payable in U.S. dollars, and a fixed maturity date. A change in any of these features gives rise to an innovative security.

For example, when the fixed periodic payment is denominated in a foreign currency, a new security has been created. Similarly, in the case of preferred stock, any security that deviates from a fixed periodic dividend payable in U.S. dollars, or from a perpetual life, constitutes a new security. For example, when the dividend payment is linked to commodity prices or when the investor may shorten the life through a put feature, a new security is created. In practice, most innovative securities represent a combination of changes in the basic features of the security. For example, a puttable floating rate bond alters both the periodic payment (by making it adjust with the level of interest rates) and the maturity date (by providing investors with the option to sell the bonds back to the firm before maturity).

Presumably corporations issue these new securities to enable the issuer or investors to accomplish something they could not achieve with existing securities—or to replicate opportunities currently available but at lower cost. Some innovations, such as commodity-linked debt, have been designed to reduce financial distress costs (by reducing interest payments when corporate cash flows are expected to be lower) and to shift risks to market participants (say, investors seeking oil price risk in oil-linked bonds) who are willing to bear them. Other innovations, such as asset securitization, aim to benefit investors more directly by, for example, increasing liquidity and reducing transactions costs. New securities may also be designed to meet the combined demands of the issuer and the investor. For example, securities such as zero coupon bonds and monthly income preferred stock (MIPS) have been designed to reduce the combined taxes of the issuer and the investors. Alternatively, innovations can be designed to accomplish in a single transaction what might have previously required multiple transactions. For example, a dual currency bond combines a fixed rate bond and a long-dated forward contract on foreign exchange.

Tables 3 through 6 present the number and dollar amounts of the different types of innovative non-convertible debt (Table 3), convertible debt (Table 4), non-convertible preferred stock (Table 5), and convertible preferred stock (Table 6). In each table, the securities are classified according to their specific features. Each security issued is represented only once. That is, the categories are meant to be mutually exclusive. For example, Table 3 contains a category called "floating rate notes" and another called "puttable floating rate notes." Although a puttable floating rate note is clearly also an FRN, it is not counted in the floating rate note category in order to avoid double counting.

Innovations in Periodic Payments

The most common alteration of the fixed periodic payment is to link the payment to an index such as interest rates or foreign exchange rates. For example, floating rate notes have coupon payments that equal a specific interest rate index, such as LIBOR, plus a spread that reflects the risk of the issuer and the liquidity of the security. Auction rate preferred stock and auction rate notes link the coupon or dividend payments to the issuer's current market interest rate through a process of periodic auctions. Remarketed preferred stock and remarketed notes use a remarketing agent to reset the coupon or dividend payments to the issuer's current market interest rate.

Some innovations, such as commodity-linked debt, have been designed to reduce financial distress costs by reducing interest payments when corporate cash flows are expected to be lower and to shift risks to market participants who are willing to bear them.

TABLE 3 ■ NUMBER AND DOLLAR AMOUNT (IN $ BILLIONS) OF NON-CONVERTIBLE DEBT SECURITIES ISSUED BY U.S. CORPORATIONS CLASSIFIED BY FEATURES

Security Name/Description		70-75	76/77	78/79	80/81	82/83	84/85	86/87	88/89	90/91	92/93	94/95	96/97
INTEREST RATE LINKED SECURITIES													
Floating Rate Notes (FRN): Coupon rate floats with an interest rate index or the CPI.	No. issued	2		1/17	**3/16**	28/20	**113/109**	70/90	**106/151**	154/195	**317/579**	908/893	**1153/1502**
	Proceeds	0.0		0.2/2.6	**0.3/0.5**	2.0/1.1	**11.0/7.5**	4.9/7.9	**8.3/17.3**	14.4/22.2	**31.8/57.3**	96.5/88.3	**112.0/150.7**
Puttable Floating Rate Bonds: Coupon rate floats with an interest rate index. Bonds are puttable at the option of the investor.	No. issued				**1/1**	4/1	**1/6**	3/–	**13/10**	6/5	**4/9**	13/2	**7/3**
	Proceeds				**0.3/0.3**	0.2/0.1	**0.1/0.5**	0.3/–	**1.6/1.2**	0.5/0.3	**0.7/1.1**	3.0/0.2	**1.5/0.5**
Perpetual Floating Rate Notes: A bond without a maturity whose coupon rate floats with an interest rate index or whose rate is periodically reset.	No. issued							7/–	**–/1**				**–/2**
	Proceeds							2.1/–	**–/0.1**				**–/0.5**
Step-Up/Step-Down Floating Rate Notes: FRN whose spread over an interest rate index increases or decreases at a future date.	No. issued								**6/4**	2/–	**30/67**	88/23	**44/31**
	Proceeds								**1.0/1.7**	0.6/–	**7.3/8.8**	8.9/1.0	**2.0/2.2**
FRN Exchangeable for Fixed Rate Notes: FRN that can be exchanged for a fixed rate note at the investor's option.	No. issued							2/–		1/–			
	Proceeds							0.1/–		1.0/–			
Fixed/Floating Rate Bonds: Coupon rate is fixed during the bonds early life and floats thereafter.	No. issued										**–/1**	8/4	**9/3**
	Proceeds										**–/0.4**	0.3/0.2	**0.4/0.6**
Auction/Remarketed Notes: Interest rate is reset so the security sells at par by an auction process or a remarketing agent.	No. issued							– /1	**8/8**	1/1	**2/3**	2/3	**3/5**
	Proceeds							– /0.1	**0.6/0.0**	0.4/0.4	**0.2/0.4**	0.6/0.3	**1.0/0.7**
Yield Curve Notes/Maximum Rate Notes/ Power Notes: Coupon rate equals a specified rate less an interest rate index.	No. issued									– /2	**1/2**	– /5	
	Proceeds								**–/0.4**	0.0/0.1		– /0.3	
Indexed Sinking Fund Debentures: The amount of each sinking fund payment is indexed to a specified interest rate index (overlaps with other securities).	No. issued	1	**20/28**	22/20	**30/26**	28/21	**23/15**	46/35	**23/24**	26/32	**39/52**	29/5	**5/–**
	Proceeds	0.1	**1.2/1.9**	1.8/1.7	**3.5/2.4**	2.3/1.7	**2.4/1.5**	5.1/3.8	**2.0/2.2**	2.3/3.8	**6.4/5.0**	2.5/0.4	**0.2/–**
PAYMENTS LINKED TO OTHER ASSETS													
Rate Sensitive Securities: Coupon rate increases (decreases) if the issuer's credit rating deteriorates (improves).	No. issued								**–/2**	– /4			
	Proceeds								**–/0.2**	– /1.1			
Dual Currency Bonds: Interest and/or principal is payable in a currency other than US dollars.	No. issued						**–/2**	32/32	**7/13**	7/3	**1/1**	2/1	**2/8**
	Proceeds						**–/0.2**	2.3/2.0	**0.4/1.1**	0.5/0.2	**1.0/0.0**	0.1/0.4	**0.3/1.5**
Principal Exchange Rate Linked Securities (PERLS) and Reverse PERLS: Principal and/or coupon payments are payable in US dollars, but payments are linked to the exchange rate.	No. issued						**–/6**	4/7	**7/1**	3/3			
	Proceeds						**–/0.5**	0.3/0.4	**0.5/0.1**	0.2/0.2			
Index, Equity, and Commodity Linked Securities: Payments linked to a stock (Chips, Elks, Percs, Yeelds), a basket of stocks (Cubs, Suns, Mitts, Smarts), a stock index (S&P500, NASDAQ), or a commodity (gas, oil, gold).	No. issued				**3/1**	2/2	**–/3**	6/2	**5/2**	– /8	**5/16**	21/14	**9/16**
	Proceeds				**0.1/0.0**	0.3/0.1	**–/0.3**	0.6/0.2	**0.7/0.2**	– /0.7	**0.4/1.2**	1.1/0.5	**0.7/1.8**
FIXED RATE SECURITIES													
Puttable Bonds and Poison Put Bonds: Bond is redeemable at a pre-specified price at the holder's option.	No. issued	2	**2/3**	4/5	**2/4**	8/5	**26/6**	32/28	**41/110**	38/35	**96/165**	106/86	**126/146**
	Proceeds	0.0	**0.2/0.0**	0.3/0.3	**0.0/0.3**	0.1/0.1	**2.3/0.3**	2.7/3.3	**6.3/20.3**	6.4/6.6	**13.7/27.3**	16.7/17.4	**24.5/27.7**
Extendible Bonds and Resettable Bonds: Interest rate adjusts periodically. At each interest rate reset period, the holder has the option to redeem the bonds.	No. issued					16/33	**50/44**	19/19	**44/18**	7/7	**6/4**	1/2	**3/2**
	Proceeds					2.0/4.9	**6.8/6.7**	3.8/2.8	**8.4/4.0**	1.2/0.7	**0.7/1.5**	0.3/0.1	**0.2/0.1**
Step-Up/Step-Down Fixed Rate Notes: Coupon rate is adjusted up or down at a predetermined point in the future.	No. issued								**5/9**			– /2	**–/1**
	Proceeds								**1.3/1.8**			– /0.0	**–/0.0**
Zero Coupon Bonds: Non-interest bearing bonds. Payment in one lump sum is made at maturity.	No. issued				**–/16**	61/7	**9/15**	8/5	**7/2**	1/11	**7/6**	3/8	**12/65**
	Proceeds				**–/1.0**	3.2/0.1	**1.3/1.3**	0.5/0.4	**0.5/0.3**	0.0/3.2	**0.9/0.5**	0.8/1.0	**2.4/8.5**
Payment-In-Kind Notes: Notes on which the interest payments can be made in cash or additional notes, at the option of the issuer.	No. issued							– /4	**5/–**	– /1	**–/2**	1/–	**–/1**
	Proceeds							– /0.7	**1.1/–**	– /0.0	**–/0.3**	0.2/–	**–/0.0**
Monthly/Quarterly Income Debt Securities (Mids, Quids, Qids, or Quics): A foreign subsidiary issues the security. The subsidiary then lends the funds back to the parent.	No. issued											– /11	**4/1**
	Proceeds											– /0.9	**0.7/0.1**
OTHER DEBT INNOVATIONS													
Depositary Debentures: Debentures issued using depository receipts.	No. issued	1	**4/1**			2/–	**–/2**	– /1			**2/4**	1/–	**1/–**
	Proceeds	0.0	**0.3/0.2**			0.0/–	**–/0.1**	– /0.5			**0.3/0.5**	0.0/–	**0.0/–**
Global Bonds: Bonds issued Debt structured to qualify for simultaneous offering in more than one market.	No. issued										**–/1**	2/23	**30/29**
	Proceeds										**–/0.0**	1.5/6.3	**8.1/8.7**

TABLE 4 ■ NUMBER AND DOLLAR AMOUNTS (IN $ BILLIONS) OF CONVERTIBLE DEBT ISSUED BY U.S. CORPORATIONS CLASSIFIED BY FEATURE

Security Name / Description		70-75	76/77	78/79	80/81	82/83	84/85	86/87	88/89	90/91	92/93	94/95	96/97
INTEREST RATE LINKED SECURITIES													
Convertible Adjustable Rate Bonds (CARBs): Convertible bond with coupon payments adjusted based on an interest rate index.	No. issued Proceeds				**–/1** **–/0.1**	1/3 0.1/0.2	**2/–** **0.1/–**		**4/–** **0.3/–**				
Adjustable Rate Convertible Debt: Coupon interest varies directly with the dividend rate on the underlying common stock.	No. issued Proceeds									1/– 0.2/–			
FIXED RATE SECURITIES													
Extendible Convertible Bonds: Convertible bonds with a maturity date that is extendible.	No. issued Proceeds					– /1 – /0.0	**1/1** **0.0/0.1**	– /1 0.0			**–/2** **–/0.1**		
Puttable Convertible Bonds: Convertible bond that can be redeemed prior to maturity, at the option of the holder.	No. issued Proceeds					2 /1 0.0 /0.1	**6 /3** **0.4 /0.1**	7 /4 0.4 /0.1		2 /– 0.7/–		– /2 – / 0.2	**5 /5** **0.2 /0.9**
Liquid Yield Option Notes (LYONS): Puttable, callable, convertible, zero coupon debt.	No. issued Proceeds						**–/7** **–/0.9**	2 /1 0.3 /0.1	**4/ 11** **1.0 /2.1**	6 /10 1.9 /3.0	**7 /10** **1.3 /3.0**	3 /4 0.5 /1.4	**3 /3** **0.5 /2.2**
Zero Coupon Convertible Debt: Non-interest bearing convertible debt issues.	No. issued Proceeds	5 0.2			**–/1** **–/0.0**				**1 /1** **0.1 /0.4**	4 /5 1.0 /0.8	**2 /2** **0.2 /0.5**	1 /– 0.1 /–	**1 /1** **0.1 /0.4**
Investment Company Convertible Notes (ICONS): If the bond is selling for less than 95% of par value, the convertible price must be adjusted downward or interest rate upward.	No. issued Proceeds											1 /– 0.0 /–	
Convertible Exchangeable Notes: Convertible bond that allows the issuer to substitute convertible preferred shares with an identical yield.	No. issued Proceeds										**–/1** **–/0.0**	1 /1 0.0 /0.1	**1 /–** **0.1 /–**
Exchangeable Debt: Debt Convertible into the common stock of a third party's stock (not the issuer's stock).	No. issued Proceeds	1 /– 0.0 /–			**4 /–** **0.2 /–**	1 /– 0.1 /–	**1/5** **0.1/0.5**	4 /– 0.2 /–	**2 /2** **0.7 /0.1**	– /1 – /0.0	**1 /7** **0.1 /1.5**	3 /13 1.1 /2.5	**15 /8** **2.1 /2.7**
Step-Up Income Redeemable Equity Notes	No. issued Proceeds										**2 /3** **0.2 /0.5**		
MANDATORY CONVERSION													
Exchangeable DECS (STRYPES, SAILS): A DEC that has a mandatory conversion into a third party's stock.	No. issued Proceeds											1 /4 0.7 /1.0	**4 /3** **0.6 /1.0**
Dividend Enhanced Convertible Securities (DECS): Debt that must be converted at a specified date. Generally pays a cash dividend above that on the underlying common stock and has capped share value.	No. issued Proceeds									1 /– 0.0 /–	**–/1** **–/0.8**	1 /3 0.2 / 0.4	**3 /3** **0.5 / 0.5**

As examples of exchange rate-indexed securities, principal exchange rate securities have coupon payments that are linked to foreign currency exchange rates and payable in U.S. dollars, and dual currency bonds have coupon and/or principal payments denominated in a currency other than U.S. dollars.

Interest rate and exchange rate linked securities can enable the investor and the issuer to match their asset and liability structures more closely so as to reduce the volatility of cash flows. Reducing the volatility of cash flows may reduce taxes and financial distress costs, as well as costs arising from conflicts of interest between stockholders and bondholders in highly leveraged firms. Index-linked securities like floating rate, auction rate, and remarketed securities reduce cash flow volatility by hedging interest rate risk. In similar fashion, exchange rate-linked securities and dual currency bonds can provide a hedge for firms who are involved in international commerce. Rather than issuing a dual currency bond, companies could achieve much the same effect by issuing bonds in the foreign market.

Auction rate securities, remarketed securities, and resettable securities also reduce investor uncertainty and information costs by resetting interest rates to adjust for changes in the issuer's credit quality. As the firm's credit rating improves (or deteriorates), each of these securities reduces (increases) the firm's financing costs. And, although such a provision can end up increasing financing costs, it reduces the credit spread the firm must pay when the securities are issued.[9]

Other innovativons in bond design include the exclusion of any periodic payments (as in zero coupon bonds), payments that increase or decrease over time in a predetermined schedule (step-up and

9. This may also reassure investors by reducing any incentive the firm might have to increase the firm's future risk.

TABLE 5 ■ NUMBER AND DOLLAR AMOUNTS (IN $ BILLIONS) OF NON-CONVERTIBLE PREFERRED STOCK ISSUED BY U.S. CORPORATIONS CLASSIFIED BY FEATURE

Security Name / Description		70-75	76/77	78/79	80/81	82/83	84/85	86/87	88/89	90/91	92/93	94/95	96/97
INTEREST RATE LINKED SECURITIES													
Adjustable Rate Preferred Stock: Dividend rate is reset each period based on an interest rate index.	No. issued					13 /31	**13 /14**	12 /7	**8 /4**	1 /–	**– /5**	11 /1	**4 /17**
	Proceeds					1.2 /2.8	**1.1 /0.8**	0.6 /0.5	**0.4 /1.0**	0.1 /–	**– /0.2**	1.5 /0.1	**1.0 /3.2**
Variable Term Floating Rate Preferred Stock	No. issues										**6 /2**	– /18	**– /4**
	Proceeds										**0.3 /0.8**	– /1.2	**– /0.2**
Auction Rate Preferred Stock (MMP, DARTS, AMPS, STAR): Dividend rate is reset by an auction process every period.	No. issued						**6 /48**	57 /37	**45 /40**	53 /52	**107 /92**	3 /7	**12 /12**
	Proceeds						**0.5 /3.4**	4.0 /2.4	**2.8 /3.1**	3.7 /3.6	**6.5 /3.8**	0.2 /0.7	**1.6 /0.8**
Remarketed Preferred Stock: Dividend rate is reset every period by a remarketing agent.	No. issued						**– /1**	1 /14	**25 /9**	6 /5	**5 /13**		**– /1**
	Proceeds						**– /0.0**	0.1 /0.9	**2.0 /0.5**	0.3 /0.2	**0.3 /0.3**		**– /0.1**
Fixed/Adjustable Rate Preferred: Fixed rate preferred that becomes adjustable or auction **rate after a specified period.**	No. issued								**1 /2**	1 /–		– /1	**5 /1**
	Proceeds								**0.1 /0.3**	0.1 /–		– /0.1	**0.9 /0.3**
Step-Up/Step-Down Preferred Stock: An adjustable preferred stock security who's dividend spread over an index increases or decreases.	No. issued									– /1	**2 /–**		**1 /4**
	Proceeds									– /0.0	**0.1 /–**		**0.2 /4.3**
PAYMENTS LINKED TO OTHER ASSETS													
Commodity-Indexed Preferred Securities (COMPS): Preferred security whose coupon and/or principal payments are tied to a commodity price index.	No. issued										**– /1**	1 /–	**1 /–**
	Proceeds										**– /0.2**	0.1/–	**0.5 /–**
Indexed Sinking Funds Preferred: The amount of each sinking fund payment is indexed to a specified interest rate index.	No. issued	1		1 /–	**1 /–**	– /1	**2 /1**		**1 /–**		**3 /–**		**1 /–**
	Proceeds	0.1		0.1 /–	**0.0 /–**	– /0.1	**0.1 /0.0**		**0.1 /–**		**0.1 /–**		**0.6 /–**
FIXED RATE SECURITIES													
Payment-In-Kind Preferred: Preferred in which the payments can be made in cash or additional preferred shares at the option of the issuer.	No. issued											– /1	**1 /6**
	Proceeds											0.8	**0.2 /1.0**
Exchangeable Preferred Stock: Preferred stock exchangeable into the debt with similar characteristics at the option of the issuer.	No. issued			– /1	**1 /2**	2 /4	**6 /3**	1 /–			**– /4**	1 /2	**3 /10**
	Proceeds			– /0.6	**0.1 /0.2**	1.2 /0.5	**0.3 /0.3**	0.2 /–			**– /0.2**	0.5 /0.3	**1.8 /1.7**
Monthly / Quarterly Income Preferred Stock (Mips, Quips): A foreign subsidiary issues preferred stock. The subsidiary then lends the proceeds to the parent corporation.	No. issued										**– /2**	14 /25	**19 /13**
	Proceeds										**– /0.6**	2.2 /3.7	**4.3 /2.0**
Trust Monthly Income Preferred Stock (Toprs, Trups, Hytops): A version of Mips issued by a trust.	No. issued											– /8	**44 /60**
	Proceeds											– /1.3	**11.1 /6.0**
Preferred Purchase Units: Debt obligation requiring the holder to buy the parents future preferred stock issue.	No. issued									1 /1		– /1	
	Proceeds									0.1 /0.2		– /0.1	

step-down securities), payments in an asset other than cash (payment-in-kind securities), and payments linked to the credit quality of the issuer (credit sensitive securities). Specifically, zero coupon bonds, zero coupon convertible bonds, and liquid yield option notes (LYONs) have no payments until the maturity date; however, at maturity both the principal and accrued interest are due in a single payment. The coupon rate for step-up fixed rate notes increases by a specified amount at a stated future date. In the case of step-up floating rate notes, the spread above an interest rate index increases at a stated future date—and the converse holds for step-down securities. Payment-in-kind notes and payment-in-kind preferred stock provide the issuer with the option of making coupon or dividend payments either in cash or additional securities. Credit-sensitive bonds require an increase in coupon payments if the issuer's credit rating decreases.

Tax advantages also influence the decision to issue a new security. Prior to the passage of the Tax Equity and Fiscal Responsibility Act of 1982, the U.S. tax code allowed an issuer of zero coupon bonds to amortize the original discount on a straight line basis for tax purposes. This feature allowed corporations to deduct interest for tax purposes at a rate faster than interest actually accrued on the debt. The 1982 Tax Act requires that corporations deduct interest as it actually accrues. Not coincidentally, the number of zero coupon bonds issued subsequent to 1982 declined dramatically.

A relatively recent innovation is the tax-deductible preferred stock categorized in Table 5 as monthly income preferred stock and trust monthly income preferred stock. The innovation with the tax deductible preferred has to do with the structure of the offering more than the features of the security. In particular, with tax deductible preferred a parent company establishes a trust that issues preferred stock.[10] The proceeds from the preferred stock offering are used to buy a bond issued by the parent company, and the interest payments on the debt are deductible by the issuer. With this structure, the parent receives the flexibility of preferred stock with the tax deduction of interest payments on traditional debt.

Companies facing large costs of financial distress can benefit from issuing obligations that do not require intermediate cash payments, such as zero coupon bonds, preferred stock (whose dividends can be deferred), or payment-in-kind securities.[11] Postponing intermediate cash payments until maturity with any of these financing options may allow issuers with strong growth potential but limited current cash flow to fund that growth while avoiding a costly default or dilutive equity issue. Of course, the security's price in such cases will be more sensitive to the firm's credit rating. Payment-in-kind features transfer additional risk from shareholders to bondholders, especially in an environment of deteriorating credit risk or increasing interest rates. If rates increase,[12] reducing the security's market value, the issuer can (and will) make the interest payments in additional payment-in-kind securities. The newly issued securities will have the same maturity and coupon payments as the existing payment-in-kind security. Even though the market value of the payment-in-kind securities is less than par value, the par value determines the number of additional securities necessary to meet the interest payments.

A step-up bond or step-up preferred security changes the security's periodic payment, but its primary effect is on the expected maturity of the security. A step-up security increases the interest rate payment on fixed rate securities (or the spread in the case of floating rate securities) relative to the initial interest rate. Combining a step-up with the call feature provides the firm with added incentive to call the bond or preferred stock, since the interest rates on such securities are likely to be below market in the early part of the security's life and above-market in latter periods.

Tables 3 through 6 illustrate the ebbs and flows of securities that alter the periodic payments. The evidence indicates that some innovations have prospered, others have stagnated, and still others have dwindled away. To date, the most widely employed innovation has been the floating rate note. For instance, during the 1970s, a total of 20 FRNs were issued, raising a total of $2.9 billion in gross proceeds. During the 1980s, 706 FRNs raised proceeds of $60.8 billion; and in the first eight years of the 1990s, 5,701 issues accounted for a total of $573.2 billion in proceeds. No other innovative security compares to either the volume or proceeds associated with floating rate notes.

In contrast, the use of zero coupon bonds, zero coupon convertible bonds, and auction remarketed notes has been steady but modest. For instance, with the exception of 1982 and 1997, the number of zero coupon bond issues has not exceeded 15 since they were introduced in 1981. The use of zero coupon convertible bonds and auction remarketed notes has never exceeded eight in any one year. Finally, the use of auction rate preferred stock, principal exchange rate linked securities, and convertible adjustable rate preferred stock has deteriorated over time. Specifically, the number of auction rate preferred stock issues has ranged from six when first introduced in 1984, to a peak of 107 issues in 1992, to 12 or fewer offerings during 1994 to 1997. The use of principal exchange rate linked securities and convertible adjustable rate preferred stock has never exceeded seven issues in any year since their introduction and no issues have been made during the last four years.

Innovations in Repayment Schedule and Maturity Dates

According to our definition, traditional debt has a predetermined repayment schedule payable in U.S. dollars and a fixed maturity date. Traditional preferred stock has perpetual life. Any alterations of

10. For an account of such securities published in this journal, see Arun Khanna and John McConnell, "MIPs, QUIPs, and TOPrs: Old Wine in New Bottles," *Journal of Applied Corporate Finance*, 11, 1 (Spring 1998), 39-44.

11. Sankar De and Jayant Kale, "Contingent Payments and Debt Contracts," *Financial Management*, 22, 2 (1993), 106-122.

12. When interest rates decline, the corporation is less likely to make the interest payments in additional payment-in-kind securities. In this case, the market value of the securities exceed the par value, but the par value is still used to determine the number of additional securities necessary to meet the interest payments.

TABLE 6 ■ NUMBER AND DOLLAR AMOUNTS (IN $ BILLIONS) OF CONVERTIBLE PREFERRED STOCK ISSUED BY U.S. CORPORATIONS CLASSIFIED BY FEATURE

Security Name / Description		70-75	76/77	78/79	80/81	82/83	84/85	86/87	88/89	90/91	92/93	94/95	96/97
INTEREST RATE LINKED SECURITIES													
Convertible Floating Rate Preferred: Convertible preferred stock with dividend payments based upon an interest rate index.	No. issued Proceeds					– /3 0.1	**3 /4** **0.1 /0.0**	1 0.0					**1** **0.0**
Convertible Auction Rate Preferred: Convertible preferred stock with dividend payments set via an auction.	No. issued Proceeds							– /3 – /0.2					
FIXED RATE SECURITIES													
Convertible Adjustable Preferred Stock: Issue convertible into the issuer's common stock with a value equal to the par value of the preferred.	No. issued Proceeds					– /2 – /0.1	**4 /–** **0.2 /–**	1 /1 0.0 /0.0	**1 /–** **0.1 /–**				
Convertible Exchangeable Preferred Stock (CEPS): Convertible preferred that is exchangeable, at the issuer's option, for convertible debt with similar rate and conversion terms.	No. issued Proceeds					1 /14 0.1 /1.0	**6 /22** **0.2 /1.8**	38 /21 3.2 /2.2	**8 /13** **0.5 /0.6**	4 /8 0.9 /0.3	**6 /17** **0.6 /1.7**	3 /2 0.1 /0.3	**5 /9** **1.4 /1.8**
Convertible Monthly Income Preferred Stock: Mips which have a conversion feature.	No. issued Proceeds											3 /3 0.7 /0.6	**11 /9** **3.2 /2.4**
Depositary Convertible Preferred: Convertible preferred stock issued using depository receipts.	No. issued Proceeds							– /3 – /0.2	**1 /1** **0.3 /0.6**	– /3 2.1 /2.1	**7 /7** **1.2 /**	– /1 – /0.2	**2 /–** **0.1 /–**
Payment-in-Kind Convertible Preferred Securities: convertible preferred stock on which the interest payments can be made in cash or additional shares, at the option of the issue.	No. issued Proceeds												**– /1** **– /0.2**
MANDATORY CONVERSION													
Mandatory Convertible Preferred Stock (PERCS): Preferred stock that must be converted at a specified date. Generally pays a cash dividend above that on the underlying common stock and has capped share value.	No. issued Proceeds						**– /1** **– /0.0**	1 /– 0.0 /–	**1 /1** **0.0 /0.3**	1 /6 0.0 /2.7	**5 /4** **3.1 /0.4**	2 /6 0.0 /0.7	**7 /3** **0.9 /0.2**
Preferred Redeemable Increased Dividend Equity Securities (PRIDES): The investor gives up the first 20-25% of the stock's appreciation in return for a higher dividend rate.	No. issued Proceeds										– /2 **– /0.3**	5 /2 0.9 /0.2	**2 /4** **0.3 /0.8**
Automatically Convertible Equity Shares (ACES): similar in structure to DECs. Preferred stock coupled with a contract obligating the holder to buy a future stock issue.	No. issued Proceeds										**– /2** **– /0.4**	3 /1 0.5 /0.1	**– /2** **– /0.2**
Term Convertible Preferred Shares	No. issued Proceeds											1 /– 0.2 /–	**2 /4** **0.3 /0.8**

these features give rise to an innovative debt security or preferred stock. Securities making changes in the standard repayment schedule include securities that can be exchanged for another security of the issuer (such as exchangeable preferred stock and mandatory convertible securities), securities that can be exchanged for a security of a company other than the issuer (exchangeable debts), commodity linked securities (commodity indexed preferred securities), and stock index linked securities (Standard & Poor's 500 Index notes). For instance, exchangeable preferred stock and convertible exchangeable preferred stock provide *the issuer* the option to exchange the securities for a bond with similar characteristics. Mandatory convertible preferred stock and mandatory convertible bonds *require* that the preferred stock holder exchange the security for the issuer's common stock at the maturity date. Exchangeable debt allows the investor to convert the security into the stock of a third party, but not that of the issuer. Commodity indexed preferred securities pay a fixed dividend and have a principal value that is linked to the value of a commodity. Standard and Poor's 500 Index notes pay the principal amount plus accrued interest plus the excess (if any) of the S&P 500 index value over the initial value of the index times some predetermined multiplier.

Exchangeable securities give the issuer the flexibility to time when to issue debt or preferred stock without incurring the cost of refinancing. For issuers, preferred stock has a tax disadvantage relative to debt because interest expense is tax deductible while preferred dividends are not. However, preferred stock has one important tax advantage for

corporate investors—only 30% of dividends received are treated as taxable income to the corporation. Part of the dividend-received deduction is passed through to the issuer by the willingness of corporate investors to accept a lower dividend rate. The disadvantage of non-deductible dividends is small for a zero- or low-taxed corporation, providing a greater incentive to issue preferred stock.

Should the issuer's marginal tax rate increase in the future, exchangeable preferred stock enables the issuer to replace the preferred stock with notes on which the interest payments are tax deductible. Alternatively, for issuers that currently have a high marginal tax rate and expect a reduction in the future, exchangeable notes provide the issuer the option to replace the note with preferred stock that has the same terms and dividend payments as the note.

The conversion feature also affects the security's maturity. The conversion feature can add value by reducing conflicts of interest between bondholders and shareholders that can take the form of corporate underinvestment and risk-shifting.[13] The conversion feature provides bondholders with the assurance that they will participate in any increase in shareholder value that results from an increase in the firm's risk. Furthermore, by lowering current interest rates, convertibles reduce the probability that cash constrained companies will be forced to forgo valuable investment opportunities.

Mandatory convertible bonds (such as DECS) and mandatory convertible preferred stock (ACES) are similar to other convertible securities, except that conversion into the common stock is required at maturity.[14] Unlike ordinary convertibles, DECs and ACES reduce the investor's downside protection, since the bondholder must convert into the common stock even if the conversion value is less than the bond's par value. Mandatory conversion implies a perpetual life for the security that typically allows it to be treated as equity for balance sheet and regulatory purposes.

Alterations of the maturity date include bonds that do not mature (such as perpetual floating rate notes), bonds that provide the investor with the option to sell the security back to the issuer (puttable bonds), and bonds with the option to extend the life of the security (extendible bonds). In the case of perpetual floating rate notes, the security has an infinite life and the coupon payment is linked to an interest rate index. Puttable bonds and puttable convertible bonds include either a general put or a limited put. The general put provides the investor with the option to sell the security back to the issuer at a specific price and time prior to the security's maturity date. In contrast, the limited put may specify the conditions under which the security can be sold back to the issuer and/or the number of securities that can be sold back to the issuer at a specified put date. Extendible bonds and extendible convertible bonds enable the holder to lengthen the life of the security.

Puttable bonds and extendible bonds provide investors with protection against declining interest rates and against the possible losses from deteriorating operating performance or a leveraged recapitalization. The put can be viewed as an option on changes in the firm's creditworthiness as well as on changes in interest rates. When interest rates increase or credit quality declines, bonds with a put option decline less than bonds without a put option. When the bond price falls below the put value (i.e., when interest rates rise), the investor can sell the bond back to the issuer at a fixed price. If the firm can meet the cash flow requirement, puttable bondholders are able to avoid further wealth reductions. If the firm is unable to meet the cash flow requirement, the firm is forced to restructure or declare bankruptcy.

When reduced to fundamentals, an extendible bond is the same as a puttable bond. For example, a three-year fixed-rate bond with an extension feature for an additional three years is the same as a six-year puttable fixed-rate bond with an option to exercise the put at the end of the third year. In either case, if the coupon rate on the bond does not exceed the current required return for a security with the same risk and features, investors will return the bond to the corporation at the end of the third year.

Liquid yield option notes (LYONs) combine several innovative features into a single security. LYONs are puttable, callable, convertible, zero coupon securities. The put, call, and conversion feature each have an effect on the repayment

13. For a financially troubled firm, the underinvestment problem arises when a larger portion of the returns from a new project must go to restore the value of debt securities before the shareholders receive any value. Asset substitution can occur when management can choose to invest in riskier projects after the debt is issued. Leveraged recapitalization can occur when management can reduce the value of outstanding bonds by increasing debt or adding debt senior to that in question. By increasing firm risk, both asset-substitution and leveraged recapitalization can transfer wealth from bondholders to stockholders.

14. In general, these securities pay a higher dividend than common stock and have limited potential for appreciation (either a cap on the price appreciation or a limit to a percentage of the price appreciation).

TABLE 7 ■ NUMBER AND DOLLAR AMOUNT (IN $ BILLIONS) OF ASSET-BACKED SECURITIES ISSUED BY U.S. CORPORATIONS CLASSIFIED BY ASSET TYPE

		85	86	87	88	89	90	91	92	93	94	95	96	97
Automobile Loans / Receivables	No. issued	6	**14**	16	**21**	15	**14**	31	**29**	39	**21**	30	**61**	76
	Proceeds	1.0	**5.1**	4.2	**4.6**	7.5	**9.0**	16.6	**17.6**	17.5	**9.4**	12.6	**14.7**	14.5
Boat Loans	No. issued				**3**	1	**1**		**1**		**2**		**1**	
	Proceeds				**0.6**	0.3	**0.1**		**0.2**		**0.1**		**0.2**	
Charge Cards	No. issued								**2**	1	**3**			
	Proceeds								**1.0**	0.6	**0.9**			
Commercial Loans	No. issued										**2**		**1**	
	Proceeds										**0.2**		**0.1**	
Consumer Loans	No. issued								**1**				**6**	
	Proceeds								**0.2**				**0.2**	
Credit Card Receivables	No. issued			5	**15**	20	**46**	46	**20**	31	**65**	96	**100**	74
	Proceeds			2.2	**6.5**	10.0	**22.2**	20.4	**9.3**	12.8	**21.7**	33.1	**40.2**	26.9
Equipment Loans	No. issued									3	**2**		5	
	Proceeds									0.3	**0.1**		0.6	
Equipment Leases	No. issued	1	**1**		**1**			2	**1**	1	**5**	4	**2**	9
	Proceeds	0.2	**0.2**		**0.1**			0.3	**0.1**	1.0	**0.4**	0.2	**0.2**	1.0
Home Improvement Loans	No. issued										**8**	11	**19**	35
	Proceeds										**0.2**	0.2	**0.4**	1.3
Installment Receivables	No. issued										**2**			4
	Proceeds										**0.8**			0.4
Insurance Receivables	No. issued												**2**	
	Proceeds												**0.5**	
Leases	No. issued													3
	Proceeds													0.2
Manufactured Housing Certificates	No. issued			2	**8**	9	**11**	18	**19**	15	**33**	49	**61**	66
	Proceeds			0.2	**0.8**	1.1	**1.0**	1.3	**1.2**	1.0	**1.5**	1.8	**2.4**	2.5
Recreational Vehicle Loans	No. issued				**1**	3	**5**	3	**1**	2	**3**	8	**4**	23
	Proceeds				**0.1**	0.4	**1.4**	0.4	**0.1**	0.2	**0.2**	0.7	**0.4**	1.8
Revolving Credit / Home Equity	No. issued					6	**15**	26	**20**	28	**22**	29	**107**	319
	Proceeds					2.2	**4.4**	6.3	**3.1**	3.0	**3.2**	2.7	**13.0**	19.8
Small Business Loans	No. issued													3
	Proceeds													0.1
Student Loans	No. issued										**3**	6	**14**	18
	Proceeds										**0.4**	1.9	**4.4**	6.9
Truck Receivables	No. issued			1	**1**	1	**1**			1	**4**	1	**2**	6
	Proceeds			0.1	**0.0**	0.1	**0.1**			0.1	**0.9**	0.2	**0.1**	0.6
Wholesales Auto Receivables	No. issued								**5**	1	**1**	2	**2**	
	Proceeds								**0.4**	3.5	**0.3**	0.6	**1.1**	1.8

schedule and the maturity date of LYONs. The zero coupon feature eliminates the periodic payments, while the put, call, and conversion feature influence the final maturity and final payment.

Among securities that alter the repayment schedule and maturity dates, the use of puttable bonds has increased dramatically since they were introduced in 1973. In the 1970s U.S. corporations floated 16 puttable bonds issues that raised a total of $800 million. In the 1980s there were 262 issues of puttable bonds yielding $35.7 billion in proceeds. From 1990 to 1997, 798 puttable bond issues have raised $140.3 billion. By comparison, the use of exchangeable preferred stock and mandatory convertible preferred stock has been modest, but steady (neither security type has exceeded ten issues in any given year). And the use of convertible exchangeable preferred stock and extendible bonds has fallen over time. In the 1980s, there were 123 issues of convertible exchangeable preferred stock raising $9.6 billion in proceeds. From 1990 to 1997, 54 convertible exchangeable preferred stock raised $7.1 billion. In the 1980s, 243 extendible bonds were issued for $39.4 billion, as compared to only 32 issues for $4.8 billion in the 1990s.

Asset-backed Securities

In Table 7, we present the number and dollar amounts of asset-backed securities classified by asset type. Asset-backed securities create a secondary market that increases the security's liquidity.

Intermediaries can purchase portfolios of assets, place them in trusts or special purpose corporations, and resell the securities through a process called securitization.

For corporations with a low credit rating, securitization may be able to reduce borrowing costs on that debt. The credit rating of the underlying pool of securities is based on the underlying assets, not the issuer's credit quality. Thus, an issuer benefits from issuing a security with a credit rating that is superior to its own.[15]

The concept of asset-backed financing is relatively new in U.S. corporate financial markets. Asset-backed securities were introduced in 1985. Since that time, this market has grown from 7 issues to 646 issues in 1997 ($1.2 billion to $77.2 billion in proceeds, respectively). The types of assets used to back these securities have also increased over this period. For instance, in 1985 only automobile loans and equipment leases were securitized. By 1997, there were 19 different categories of securitized assets. Three of them—credit card receivables, automobile loans, and revolving credit/home equity loans—dominate the asset-backed market. In 1997, these three categories accounted for 469 (or 73%) out of the 646 asset-backed securities that were issued—and these 469 issues raised $61.2 billion (79%) of the $77.2 billion raised in the asset-backed security market.

CONCLUSION

This article examines the financing of publicly traded U.S. corporations in public and private security markets from 1970 through 1997. We document significant changes during this time period in the method of issuance (traditional registered offerings, shelf registered offerings, private offerings, and Rule 144A private offerings), the national locale of the offerings (domestic, simultaneous domestic and foreign market offerings, and foreign market offerings), and the kinds of securities issued.

The Securities Exchange Commission (SEC) implemented Rule 415 (shelf registration) in 1982 and Rule 144A in 1990. Based on volume, these new procedures have been very successful. In 1997, nearly half of all publicly offered securities were issued as shelf registered offerings. Of private market offerings made by U.S. corporations in 1997, Rule 144A offerings accounted for 83% of proceeds.

The internationalization of capital markets is also evident. In 1997, 11% of all proceeds raised by U.S. corporations were issued in one or more foreign markets. Of the $105 billion raised in these offerings, $31 billion was denominated in currencies other than the U.S. dollar. For corporations with foreign currency cash receipts, foreign currency debt payments provide a long-term hedge against exchange rate volatility.

Since 1970, publicly traded U.S. corporations have used 76 different varieties of innovative securities to raise over $1.7 trillion in the domestic capital markets. While traditional securities still dominate the market, our research indicates that the pace of financial innovation increased markedly during the 1980s and has continued strong throughout the 1990s. In 1997, the 2,644 issues of innovative securities accounted for almost 30% of total domestic offerings; and these 2,644 issues raised 37% ($315 billion) of the total proceeds from all U.S. offerings.

Three of the most common objectives of innovative security design have been to (1) manage the interest rate (and other financial price) risk faced by investors and issuers; (2) to reduce information costs faced by investors when buying securities from issuers with better information about their own prospects (a condition known as information asymmetry); and to (3) increase the tradability of financial assets.

Interest rate-linked coupon payments such as those used in floating rate notes are the most common features used to reduce both the interest rate risk faced by investors and hence the *real* interest cost to the issuer.[16] Interest rate-linked securities account for 63% of all innovative issues and 48% of proceeds between 1970 and 1997. Although such securities may seem to transfer interest rate risk from the investor to the issuing corporation, some issuers may have a comparative advantage in bearing such risk—particularly those whose revenues tend to increase with higher inflation and interest rates and inflation.

15. As in any risk transfer, this advantage is not without costs. That is, since the remaining assets in the firm will be riskier, the existing bondholders and stockholders will be left with riskier assets. Whether the net cost of capital is reduced is unclear. The lower cost of securitized debt may very well be offset by a higher cost of equity and outstanding bonds.

16. For a nice statement of this argument, see Brad Cornell, "The Case for Floating-Rate Bonds," *Chase Financial Quarterly*, Vol. 1 No. 1 (Spring 1981).

Another popular security, puttable notes or bonds (which in 1997 raised $32 billion, or 10% of total proceeds from innovative issues), also reduces investors' exposure to increasing rates by allowing them to put their bonds back to the issuer. But a more important attraction for investors is the protection puttable securities offer against a deterioration of the issuer's credit quality. In this sense, puttable securities may enable somewhat riskier issuers to overcome the information costs arising from investor uncertainty about the firm's future prospects.

Another entire category of securities innovation, namely asset-backed securities (ABS), has also been used by lower-rated issuers to reduce asymmetric information costs.[17] Asset-backed securities (not including mortgage-backed securities) have grown substantially, with proceeds ratcheting up from $1.2 billion in 1985 to $77 billion in 1997 (and representing 25% of innovative security proceeds). Because the ABS process segregates a set of high-quality assets (typically receivables) into a special purpose security, the values of ABS are based solely on the cash flows and risk of the underlying asset class, not on the expected cash flow performance of the issuing firm. Besides reducing investor uncertainty in this manner, asset securitization may also add value by increasing the tradability of financial assets. Increasing the tradability of financial assets may reduce investors' required rates of return and hence issuers' overall financing costs.

In sum, U.S. capital markets in the 1980s and 1990s were distinguished by both innovation and internationalization. While some securities have languished or even disappeared, others have prospered. As securities continue to be redesigned to meet the specific needs of issuing firms and investors, we expect further internationalization of the capital markets and continued growth in the quantity and dollar volume of innovative securities.

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17. See Claire Hill, "Asset Securitization: A Low Cost Sweetener for Lemons," *Journal of Applied Corporate Finance*, Vol. 10 No. 1 (Spring 1997).

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