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## Corporate Bond Defaults: First-Quarter Update

*Shanique Hall-Barber, SVO Research Analyst*

During the past couple of years, the credit market has experienced increased volatility and a weakening of corporate ratings. Following the collapse of Enron Corporation among others, investors are now paying closer detail to the financial condition of individual credits. One way to assess credit quality and/or default risk is to look at a bond's credit rating. Standard & Poor's (S&P) and Moody's Investor Services regularly provide updates on current credit conditions with an emphasis on the credits they cover. This review lies heavily on these reports.

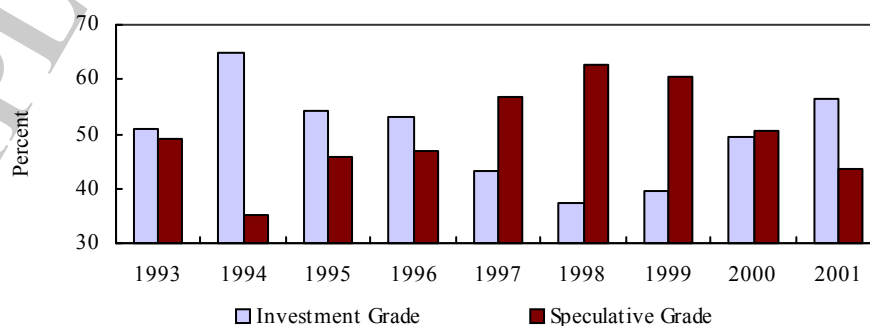
### ■ 2001 Review

The year 2001 was another record year in bond default history—marking the third consecutive year that defaults have reached record levels. According to S&P, defaults by Enron (\$10 billion), Pacific Gas & Electric, a unit of PG&E (\$8 billion), and Southern California Edison, part of Edison International (\$12 billion), accounted for 20% of the total dollar amount of last year's defaults.

According to industry experts, the record number of defaults in 2001 resulted from the combination of a weak economy and a wealth of recently issued speculative-grade debt issued during 1997 and 1998 when companies increased their debt load to help finance spending on new factories, advanced communications, etc. (Figure 1). Debt issuers that came to market with low rated junk bonds during this time comprise of 40% of all defaults. S&P's recent annual default

*Continued on page 3*

**Figure 1. Rating Classification of New Issuers**



*Source: Standard and Poor's.*

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# From the Director

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Chris Evangel, SVO Managing Director

What are we to make of the near-daily dump of economic data spilling out? Here are a few thoughts on a recent annoying item that has become a pet peeve, which involves a term that seeks to totally discount various economic data—the “**lagging indicator**.” The objective here is to increase the awareness, or skepticism, of our readers on the merits of the phrase that may sound plausible but not necessarily be correct to assume away the economic data. Also, to highlight the need to continuously ask oneself the objective of those using this phrase, as their motivation may be biased. I will draw upon our advertising media to provide, I hope, a colorful but meaningful analogy.

In these uncertain economic times, people are constantly looking for indicators to signal a direction. We continuously see a multitude of economic data. However, if you take one objective data-point and allowed two people to conclude this data as a pseudo predictor of future economic activity you might get two diametrically opposite interpretations. Who might be right? Since the objective of such an exercise seeks to determine predictability, until the predictive event occurs they may be “correct” today, while tomorrow only one might be correct. Experience shows the actual outcome probably lies somewhere in between.

If one accepts the above premise in that people can look at the same thing differently, what’s the issue here and why should we care? For those in the investment world, this ability to accurately predict, or arrive at an acceptable judgment within a certain expected outcome, *is* a key to an investment decision. Investment, referred here, can have a greater meaning than simply a financial security. Investment decisions on whether or not to: expand operations, move on plant and equipment, hire more staff, buy/sell a home or refinance, get more training/education, etc. One wants to get it right to assure themselves of an expected return on their invested capital.

First, a reference to our analogy made of two characters drawn for the television ad featuring a bull and a bear. The bull a perennial optimist, while the bear a perpetual pessimist. In one segment on the year’s forecast for the Dow Jones Industrial average, the bull says, “Dow 25,000,” the bear’s replies “Dow 1,200.” “NASDAQ 8,000,” the bull retorts, while the bear says “wrong, 800.” The bear asks what about oil prices? Bull says, “\$8 per barrel,” the bears snaps, “not quite, I’d say \$90 a barrel.” This exchange continues with the expected outcome: the

bull never doubts the sky’s the limit, while the bear believes that rock-bottom may not be low enough. But one telling sign in this ad comes from the bear who calls out following a totally unrelated economic data question and says, “oh,...you’re just not listening.”

Perhaps some of us spend too much time reading business related newspapers and periodicals and too much time tuning into cable television dedicated to the financial markets. When you also add a substantial number of years doing business in the financial markets, you can get quite cynical about over-reaching statements. Which brings us back to the point of these thoughts: lagging indicators.

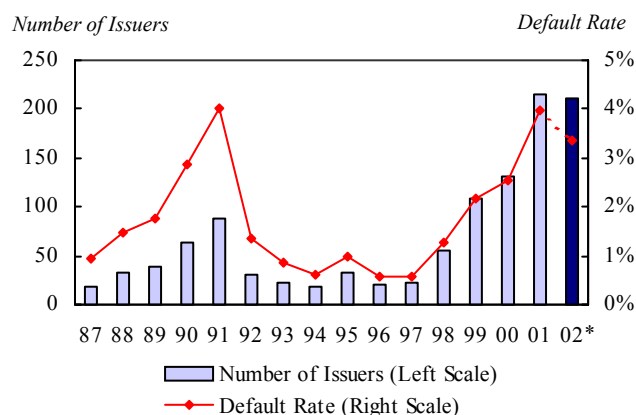
Since the late fall of 2001 through this spring, a number of economic data have come forward indicating the following: rising unemployment rate, lower levels of total employment, lower commodity prices, slowdown in top-line (total revenues) business revenues and earnings (bottom-line), reduction or canceling of business orders, higher bankruptcy rates, and the list can go on. I am not sure if we are just naturally inclined to be optimistic or there are those trying to will a substantial economic rebound. However, we constantly hear from several financial professionals that many of the above are lagging indicators. Even if one accepts their premise and realize further much of the economic data are released in different points in time, when you add all those *lagging* (economic) indicators you have quite a large chunk of the economy. You would think one has, or should have, asked at what point do you reach when there are a limited number of economic data that have not been discounted by placing them in the box dedicated to lagging indicators.

What further triggered these thoughts were Federal Reserve Board Chairman Greenspan’s April statement to Congress on the “recovery” and perhaps the lack of enthusiasm on not raising short-term interest rates, he said, “...the economic recovery, at this point, is not robust.” You would think he must know something about the economy and may not be as keen to discount all those *lagging* indicators.

The important message one should take away is the need to remain aware, curious, and skeptical to sweeping declarations/statements that utilize phrases, as lagging indicator or the “over-valued nineties” (a subject for a future article). When these phrases become part of the accepted lexicon but few question their validity, we run the risk of also becoming laggards in responding to those indicators.

# Corporate Bond Defaults: First-Quarter Update (Continued)

**Figure 2. Corporate Bond Defaults**



\* 2002 projected (including Argentina). Source: Standard and Poor's.

study notes that two out of three companies that defaulted in 2001 were initially rated in the late-1990s.

In 2001, S&P reported that the annual number of corporate defaults exceeded 200 for the first time, with 216 issuers defaulting on \$116 billion, compared to 132 issuers defaulting on \$42.3 billion of debt the previous year (Figure 2). Some 3.99% of all issuers defaulted in 2001, almost equaling the record 4.01% set in 1991 and exceeding the 2.56% global default rate in 2000. The default rate for issuers of junk bonds (speculative-grade) was 8.57%, the highest level since 1991, when 10.87% of high-yield debt issuers defaulted. In 2000, 5.68% of firms with speculative-grade ratings defaulted. Additionally, according to S&P, 0.27% of issuers with investment-grade ratings defaulted last year, up from 0.15% in 2000. The record level, 0.28%, was set in 1992.

U.S.-domiciled issuers were the primary source of last years defaults. S&P reported that 162 occurred in the U.S., while Argentina was second with 15, including 10 banks that defaulted after the government-imposed limits on bank account withdrawals. S&P expects additional defaults in Argentina, as the nation's economic conditions remain volatile.

Moreover, companies in the telecom sector dominated the issuer default volume accounting for 18.5% of the total. The largest telecom default came from Exodus Communications.

Moody's reported similar default statistics in its 15th annual default and recovery study published in February 2002. According to Moody's, 212 issuers defaulted on a total \$135 billion of bonds last year compared with 167 companies defaulting on \$49.2 billion in 2000. This

averages close to 15 issuers defaulting per month in 2001. Moody's attributes the continued decline in corporate credit quality to "rapid increases in corporate debt growth and overly optimistic profit forecasts in the late 1990s coupled with a steep slide in corporate earnings this year, as well as special events such as the terrorist attacks of September 11<sup>th</sup>."

Consistent with record levels of defaults, a record 257 publicly traded companies filed for bankruptcy in 2001 compared to 176 filings in 2000 (Figure 3). This marks a 46% increase over the prior year. According to *Bankruptcydata.com*, the telecom industry accounted for 36 of the 257 filings (14%).

**Figure 3. Public Companies Filing Chapter 11**

Year	# of Filings		Assets (\$ millions)	
	1/1—4/15	Annual Total	1/1—4/15	Annual Total
1991	39	123	\$20,143.00	\$93,624.00
1992	32	91	\$18,427.00	\$64,226.00
1993	26	86	\$5,717.00	\$18,745.10
1994	14	70	\$4,021.00	\$8,336.80
1995	23	86	\$2,270.00	\$23,106.90
1996	29	86	\$3,755.00	\$14,201.10
1997	22	83	\$3,062.00	\$17,247.00
1998	51	122	\$18,635.00	\$29,194.70
1999	48	145	\$28,641.00	\$58,759.70
2000	50	176	\$28,641.23	\$94,786.20
2001	72	257	\$62,972.00	\$258,490.00
2002	74		\$80,244.00	

Source: *Bankruptcydata.com*

## ■ 2002 Preview and Outlook

Federal Reserve Chairman Alan Greenspan noted this February during his semi-annual monetary report to Congress that "evidence suggests that a recovery is well under way." Although the U.S. economy is demonstrating signs of an improvement, pressures on corporate credit remain. Despite positive signs that the U.S. economy is recovering, corporate defaults in the first-quarter of 2002 continued to increase over last year highs. For the first-quarter 2002, S&P reported that globally ninety-four issuers with obligations amounting to US\$32.4 billion in rated corporate bonds defaulted.

Among the higher profile defaults were those of retailer Kmart Corporation, Fabric maker Polymer Group Inc., and Bermuda based telecommunication company Global

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## Corporate Bond Defaults: First-Quarter Update (Continued)

**Figure 4. First Quarter 2002 Global Defaults**

Issuer	Industry	Amount (\$ Mil)	Default Date
Global Crossing Ltd.	Telecommunications	\$4,800	1/28/02
Kmart Corp.	Variety Stores	\$3,416	1/22/02
McLeodUSA Inc.	Communication Services	\$4,635	1/01/02
Telefonica de Argentina	Telecommunications	\$2,902	1/21/02
United Globalcom Inc.*	Holding Companies	\$3,231	1/25/02
Metromedia Fiber	Telecommunications	\$1,621	3/15/02

Source: Standard and Poor's, \* United Pan-Europe Communications N.V. (Netherlands).

Crossing Ltd—each defaulting on more than \$3 billion of rated debt (Figure 4). The largest defaults continue to flow from the embattled telecom sector. Additionally, S&P reported that 41 of first-quarter defaulting companies came from the United States—accounting for nearly half of the bond defaults worldwide—thirty-eight from Argentina, three in the U.K., two each in Bermuda, Brazil, Canada, and Indonesia, and one each in Australia, China, the Netherlands, and Switzerland.

There is, however, some good news. Despite the rise in the default rate in 2001 and continued rise in the first-quarter of 2002, both rating agencies expect the default rate to peak soon, and then fall as the U.S. economy continues to recover. Moody's expects the default rate to peak by the second quarter, dropping near 8% by year-end and then returning to historical average by 2003. "Despite lingering credit pressures, the worst seems to be behind us in terms of default rates," said David Hamilton, Director of default Research at Moody's. Already, recent data largely supports Moody's estimates. Moody's reported that the default rate in the global speculative-grade debt market has fallen for the first time since October 2000. The global speculative grade rate fell in February to 10.5% from 10.7% in January. It also fell for a second consecutive month in March to 10.3%.

According to Moody's, another reason for their improved 2002 credit outlook is due to the improved ratings for new bond issuers entering the new capital markets. The pools of credits are now stronger with lower default risk. The average rating for new issuers improved to Baa2 at the end of 2001 from a low of Ba2 in 1997. Stronger initial ratings usually translate into lower forward risk of default.

S&P states in a recently released report<sup>1</sup> that global credit quality has improved slightly at the end of the first quarter matching their expectations that the default rate will peak by the third quarter, and slowing later in the year.

Historical data show that in a typical cycle, defaults usually peak about a half a year after a recession's bottom, which would suggest a peak at the beginning of summer.<sup>2</sup>

### ■ Downgrades/Upgrades

Default is just one state to which an issuer's debt rating can transition. Another important metric frequently monitored is the percentage of issuers affected by upgrades and downgrades. According to Moody's, changes in the distribution of ratings add a much richer picture of changes in aggregate credit quality. Moody's reported that over 700 companies were downgraded in 2001. The attack of September 11<sup>th</sup> lengthened the list of downgrades, especially in the commercial airline and aerospace manufacturing industries. In 2001, there were 3.6 times as many downgrades as upgrades among speculative-grade issuers, while downgrades outnumbered upgrades 2.3 to 1 among investment-grade issuers. This marks the 4<sup>th</sup> year in a row (16<sup>th</sup> consecutive quarter) that downgrades have outpaced upgrades. While downgrades have outpaced upgrades for 16 consecutive quarters, it is worth noting that market professionals believe the credit cycle should hit its trough in the coming months and then improve.<sup>3</sup>

A recent report by S&P shows that credit quality is improving. According to S&P, the U.S. corporate credit ratio improved slightly in the first-quarter of 2002, breaking a four-year trend of decreasing credit quality. The ratio of downgrades to upgrades was 5.31 to 1 for the first quarter of 2002 compared to, on an annual basis, 5.41 to 1 in 2001. S&P expects the number of upgrades to be modest in 2002, influenced by the economic recovery.

### ■ Recovery Rates

According to Moody's, the average recovery rate of defaulted bonds fell for the third straight year. Holders of bonds that went into default last year were able to recover only 21 cents on the dollar, a record low. That's down from 25 cents on the dollar in 2000, and below the 27-cent trough in 1990, when the U.S. economy last entered recession. It's also less than half the average recovery over the last 20 years. According to David Hamilton, director of default research at Moody's, recoveries and defaults are cyclically correlated, when the default rate is high, recovery rates are at their lowest. Moody's said in the last 20 years, bondholders of companies with investment-grade ratings of "Baa3" or higher one year before default recovered 13% to 49% more than bondholders of companies with "junk" ratings of "Ba1" or lower.

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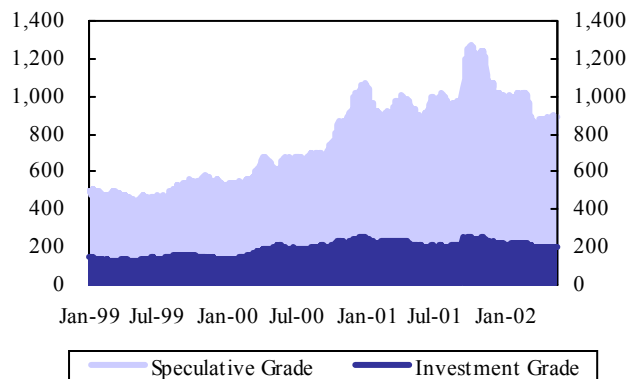
<sup>1</sup> "Global Credit Market Trends, First Quarter 2002", Standard & Poor's, April 8, 2002.

<sup>2</sup> Maich, Steve, "Defaults hit record level in January," National Post, February 1, 2002.

<sup>3</sup> Deaton, Alan, "Bank Trends," FDIC, January 2002.

## Corporate Bond Defaults: First-Quarter Update (Continued)

Figure 5. Credit Spreads (Basis Points)



Data as of May 20, 2002. Source: Standard & Poor's ([www.spglobal.com/IndexHistory.txt](http://www.spglobal.com/IndexHistory.txt))

### ■ Rates of Returns

Corporate bonds often react to changes in economic conditions. During times of economic uncertainty, the "spread" between corporate and government bond issues widens. This means that corporate bonds are pricing an additional risk, thereby reducing the value of an existing bond. If a corporation undergoes a positive credit event, such as merging with a stronger company, this risk spread is narrowed, resulting in a higher value bond.

Yield spreads over treasuries of both investment- and speculative-grade bonds have narrowed considerably from their widening in response to the terror attacks of September 11<sup>th</sup>.<sup>4</sup> According to S&P, U.S. investment- and speculative-grade credit spreads averaged 225 basis points (bps) and 1,000 bps in 2001 respectively. So far in 2002, the investment- and speculative-grade credit spreads have averaged 963 bps and 215 bps in the first quarter 2002 respectively (Figure 5). According to S&P, credit spreads on speculative-grade bonds will continue to tighten throughout 2002 as defaults and heightened credit quality concerns abate.

### ■ Credit Quality outside the U.S.

According to S&P, credit quality in Europe has worsened in the first quarter. Last year, 14 European borrowers defaulted on \$4.2 billion worth of debt. This represents only 3.5% of the total value worldwide and is low by international standards. However, according to S&P, the clearest indication of the deteriorating quality of European credits is not so much the absolute number of defaults, but the ratio of downgrades to upgrades.<sup>5</sup> The credit ratio of downgrades to upgrades in the first-quarter of 2002 rose to 20.5 to 1 compared to just 1.7 to 1 a year earlier and an annual average of 4.4 to 1. Diane Vazza, head of Standard & Poor's Global Fixed Income Research remarks that

"defaults in the European Union are likely to continue rising, peaking in the second quarter, reflecting the continued difficulties of the European telecommunications sector." According to Moodys, credit deterioration in Japan and Western Europe produced far more downgrades than upgrades to non-U.S. borrowers in the first quarter of 2002.

### ■ Conclusion

The last two years have been difficult ones for investors; particularly bond investors. As this article has documented, recent default rates are at historical highs, while recoveries after default for direct obligation debt is lower than the historical norm. Many investors are reexamining the credit risk exposure of their portfolios and adjustments are being made.

One new innovation resulting from high volume of corporate defaults over the last several years is the growing awareness of and potential benefits from hedging their credit exposure through credit derivatives and other structured products. Credit derivatives were developed to help companies mitigate their credit exposure. According to the International Swaps and Derivatives Association (ISDA), the use of credit derivatives has increased dramatically, particularly over the last year.<sup>6</sup> The volume of credit default swaps, the most liquid type of credit derivative that protect buyers against corporate defaults, rose 45% between June and December of last year. Institutional investors primarily use credit derivatives; insurance companies, as a part of that group, are beginning to adopt these instruments as part of their portfolio risk management.

In addition to credit derivatives, the demand for safe income has led many institutional investors to structured products (mortgage-backed and asset back securities). So far in 2002, structured products—particularly bonds backed by pools of car and credit card loans, and home and commercial real estate mortgages—have been top performers in the U.S. bond market, outperforming returns on corporate bonds.

A growing body of economic evidence is pointing to a nascent recovery being in place. While this will take some time to work through the debt markets, it may well be the case that this historical period in the credit markets is nearing an end. As conditions warrant, updates will be featured in this *Newsletter*.

<sup>4</sup> "Credit Trends: Weekly Commentary," Moody's Investors Service, April 22, 2002.

<sup>5</sup> "Bond Holders Demand More," The Economist Global Agenda, April 29, 2002.

<sup>6</sup> Townsend, Piers, "European credit quality continues to decline," Financial News, April 22, 2002.

# Insurer Investment in Structured Securities

Dimitris Karapiperis, SVO Research Analyst

## ■ Introduction

Advances in financial product design along with improvements in portfolio risk measurement and management techniques and methodologies have, in recent years, fundamentally transformed the management of fixed income portfolios. As major institutional fixed-income investors, U.S. insurance companies have adapted to these innovations. Nowhere is this more apparent than in the growing investment in structured finance products appearing in insurers' bond portfolios. This article provides an aggregate overview of U.S. insurance companies' investment in non-mortgage related structured finance fixed income products. Structured finance products offer new risk—matching and return—generating opportunities for insurers but at the same time require additional and more sophisticated tools and methodologies in order to be successfully managed. These products can be quite complex, and a failure to adequately analyze them can lead to unintended and often dire results, as evidenced by the announcement of a senior officer of a large institution, who when announcing a write-down of over \$900 million on a collateralized debt obligation portfolio suggested that they did not know what they were buying.

## ■ Structured Finance

The term *structured finance* can have many meanings depending on who is using the term. For purposes here, a structured finance product consists of a bond or note backed by financial assets such as loans, credit card receivables, manufactured housing contracts etc. and issued by an intermediary like a special-purpose vehicle (SPV). The repayment of these bonds is linked to their underlying assets which are transferred to the intermediary whose only function is to buy these assets and securitize them. These structured products are defined as "other multi-class commercial mortgage-backed/asset-backed securities" under the subheading Industrial and Miscellaneous in schedule D-part 1 (Long-Term Bonds Owned). While mortgage-backed securities, REMICS and CMOs are also considered to be structured products, they are not part of this article for they are already familiar to most readers due to their fairly long history.

Previous articles in this *Newsletter* have reviewed catastrophe bonds, credit-linked notes, equity-linked notes and collateralized debt obligations (CDOs). CDOs along with CBOs (collateralized bond obligations) and CLOs

(collateralized loan obligations) are among the fastest growing sectors of the new-issue fixed income market and are among the securities considered here.

These securities have evolved to satisfy demands from both borrowers and lenders for more risk-specific, maturity-specific, or cash-flow-specific types of instruments. In contrast to a direct obligation bond, where repayment is tied to the cash flow payments of a single borrower under a broad bond indenture, these structured products allow specific risks to be bought and sold in the financial marketplace.

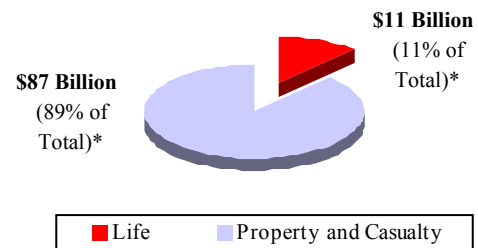
By using the SPV to create new securities, highly customized cash flow payout patterns with varying degrees of risk, maturity, and liquidity can be offered to investors. Modern asset/liability management models readily incorporate these targeted securities into the management of the overall portfolio. The result is that portfolio managers can have more precise targets for cash flow payments, assumed credit risk, liquidity risk levels and maturity structures than would otherwise be possible using only direct obligation bonds.

## ■ Insurer Investment

Figure 1 shows the investment in structured securities as of the end of 2000 of Life and Property & Casualty (P&C) insurance companies, \$87 billion and \$11 billion respectively, while Figure 2 (on page 5) show the same investment segregated by asset class (the type of asset that backs the bonds or notes). These are preliminary results. Main asset classes that were readily identifiable are: other non-defined commercial mortgage-backed securities (CMBSs), credit card receivables, auto, aviation, home

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**Figure 1. Structured Securities Investment of Life and Property & Casualty Insurers (Year-End 2000)**



\* \$98 Billion Total Reported. Source: National Association of Insurance Commissioners.

## Insurer Investment in Structured Securities (Continued)

**Figure 2.**  
**Structured Securities Investment of Life and P&C Insurers by Asset Class (Year-End 2000)**

Millions of USD	CMBS	CBO, CLO, CDO	Credit Card	Auto	Aviation	Home Equity	Equipment	Mfg. Housing	Not Yet Identified	TOTAL
<b>Life</b>	10,664	8,812	5,960	2,267	1,748	533	445	413	56,188	<b>87,030</b>
<b>P&amp;C</b>	1,205	775	1,092	642	88	81	60	3	7,257	<b>11,203</b>
<b>TOTAL</b>	<b>11,869</b>	<b>9,587</b>	<b>7,052</b>	<b>2,909</b>	<b>1,836</b>	<b>614</b>	<b>505</b>	<b>416</b>	<b>63,445</b>	<b>98,233</b>

Source: National Association of Insurance Commissioners.

equity and equipment loans, manufactured housing, CBOs, CDOs, and CLOs. Out of the total \$98.2 billion, about one-third or \$34.8 billion has been identified and appropriately categorized. Work continues to identify the remaining \$63.4 billion of which \$56 billion is owned by Life insurers and \$7.2 billion is owned by P&C insurers. Unfortunately, this work has been seriously impaired by the destruction of our files following the tragic events of September 11, 2001.

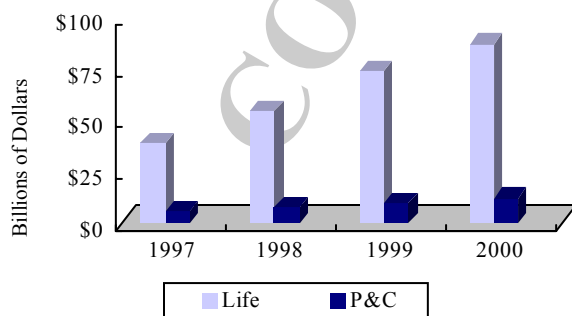
Figure 3 illustrates the growth in structured security investment (again excluding residential and defined commercial mortgage-backed securities) by U.S. insurers in the period 1997-2000. As Figure 4 shows, life insurers have steadily increased their holdings of these securities, from a statement value investment of less than \$40 billion in 1997 to about \$87 billion at the end of 2000. Similarly, albeit at a smaller scale, P&C insurers have more than doubled their investment from a little more than \$5 billion in 1997 to slightly over \$11 billion at year-end 2000.

Figure 4 shows the relative importance of the structured sector within insurers' total bond portfolios. For Life companies, structured products constituted a little more than 3% of their total portfolio in 1997, perhaps a key year for this type of investment as many of the new structured securities became widely available that year, while in 1998 it was 1.6%. They subsequently grew to almost 2% in 1999 and 2.2% in the end of 2000. P&C companies had a parallel path with 3% in 1997 and then a steady growth from 0.8% in 1998 to 1.5% in the end of 2000. Heading into 2002, all indications are that the markets for these products should continue to show strong growth.

Prudent investment in structured products requires a level of investment analysis that in many cases, as noted earlier, is considerably more advanced than investment in far simpler direct obligation bonds. In "investment speak" investment in these bonds incurs significant information and transaction costs that involve economies of scale (once the necessary resources to properly analyze and invest in

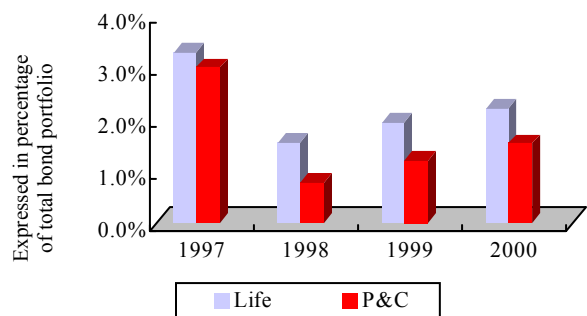
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**Figure 3. Structured Securities Investment of Life and P&C Insurers (1997-2000)**



Source: National Association of Insurance Commissioners.

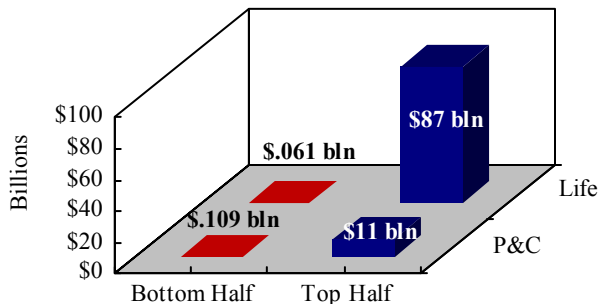
**Figure 4. Average Structured Securities Investment in Life and P&C Insurers (1997-2000)**



Source: National Association of Insurance Commissioners.

## Insurer Investment in Structured Securities (Continued)

**Figure 5. Structured Securities Investment of P&C and Life Insurers (Year-End 2000)**



Source: National Association of Insurance Commissioners.

one have been committed the costs to do multiple ones decline significantly). To this end, it is not surprising that large insurers typically are far more active in structured securities than small insurers.

Figure 5 shows the distribution of structured finance investment between the top and bottom half of the Life and P&C insurers at year-end 2000 as segregated by total assets. For the Life industry, the top half had an average investment of almost 4% of their total bond portfolio and

held almost the entire investment of the industry (\$87 billion versus only \$61 million for the bottom half). In contrast, the lower half held an average 0.5% of their bond portfolio in structured products. For P&C companies, the differences are similar. The largest half of the firms held slightly more than 2% of their bond portfolios in structured products while the lower half held an average 0.7% (\$11 billion for the top half versus only \$109 million for the bottom half).

### ■ Concluding Remarks

The growth and development of structured finance products offers insurers an increasingly broad array of risk/return combinations from which to choose when managing an investment portfolio. The market for these products continues to grow, even during the recent economic slowdown and credit market “tightening.” Successful management of portfolios containing structured products comes with a relatively high resource expenditure for the development and application of appropriate tools and methodologies. In return, the portfolio managers have the capacity to tailor the risk/return, maturity and liquidity profiles of their fixed income portfolios to more closely match their liabilities structures while at the same time affording themselves the opportunity for superior returns.

# Monoclonal Antibodies, Anyone?

## The Medical Biotechnology Industry

Marlene Lundberg, SVO Senior Credit Analyst

They're here! Monoclonal antibodies mimic and supplement the human immune system, ranging freely within the body to essentially seek out and neutralize foreign invaders. The Medical Biotech Industry has created these monoclonal antibodies by taking fragments of naturally occurring antibodies which, when introduced into a patient, adhere to multiple binding sites on the invading toxin molecules, preventing those binding sites from latching onto body proteins and causing illness. Monoclonal antibodies are proteins capable of recognizing a single disease antigen (toxins, bacteria, foreign cells), as compared to polyclonal antibodies, which may recognize multiple diseases, but lack specificity and reproducibility. Unlike *antibiotics*, to which microbes are developing resistance, *antibodies* have the biochemical ability to attach themselves to large microbes and neutralize them, providing an entirely new approach to developing broad-spectrum anti-microbial agents.

Monoclonal antibodies are just one example of the products developed by the Medical Biotechnology Industry (also known as the Biopharmaceutical Industry). This paper will focus only on the U.S. portion of the industry because, while Europe also has biopharmaceutical firms, the U.S. is the leader in the field. Note too, that industrial and agricultural biotechnology are not covered here.

Medical biotechnology companies specialize in the development and production of *biopharmaceuticals* that use the body's own tools to combat diseases, unlike pharmaceutical companies which develop drugs derived from chemical materials. To give you a general idea, without defining all the terms, let's just say that biopharmaceuticals can be divided into five categories on the basis of their form: proteins, antibodies, nucleic acids, glycotherapeutics, and cell- or tissue-based therapeutics. On the market, the most successful of these have been proteins, which accounted for 27 of the top 30 biopharmaceuticals in 1999. Protein drugs can in turn be classified by function as cytokines, hormones, clotting factors, tissue plasminogen activators and antigens (vaccines). Cytokines include growth factors, interferons and colony stimulating factors. They are heavily represented among commercialized biopharmaceuticals.<sup>1</sup>

### ■ Major features of the industry

**Young, growing, and often unprofitable industry.** The medical biotechnology revolution is only 25 years old and still in the pioneering phase, with the impact of current R&D likely to be realized in the next 25 years.<sup>2</sup> The odds

are long for any particular biotech firm's success. Only 1 in 10 biotech drugs will ever win final FDA approval. Similarly, only 10% of publicly traded biotech firms is expected to survive.<sup>3</sup> The medical biotech industry is currently in the rapid growth stage of its cycle. More than half of the 133 biopharmaceuticals available today won approval from the FDA within only the last five years, and another 300 are in the late stage of development.<sup>4</sup>

**Huge resource demand.** The cost to develop a drug and bring it to market, taking 10-15 years, has shot up from \$231 million in 1987 to \$802 million in 2002.<sup>5</sup>

**Cyclical funding.** The amount of funding from investors from year-to-year can vary widely. While U.S. biotech firms raised a record \$32 billion during 2000, they were able to raise only \$12.9 billion in 2001. This was partly because of an economic slowdown in the U.S., and partly because the disfavor that fell on dot-coms technology companies in March 2000 may also have included biotechnology firms. Still, 2001 was biotech's second best year for financing. For 2002, according to Steven Burrill, a biotech merchant banker, "... so far, there's been some M&A activity, the IPO window has opened a bit, and the venture capital community seems interested, with billions earmarked for biotech." He expects the biotech sector to raise as much as \$20 billion this year.<sup>6</sup> One problem recently, however, is that while venture capital still exists for the biotech industry, companies applying now will likely get less funding than at any time in the past decade because investors are responding to market uncertainty by lowering their calculations of value for the businesses in which they invest. Biotech companies may have to take up to a 50% decrease in valuation.<sup>7</sup>

**Revenue from licensing to large pharmaceutical companies.** Although funding is cyclical and most biotech firms are unprofitable, many still have enough cash to research multiple drug candidates and to demand better deals with large pharmaceutical companies. Previously, struggling biotechs had to license research to big drug companies at fire-sale prices, but now the biotechs are able to charge higher prices for licensing.<sup>8</sup>

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<sup>1</sup> Boswell, Clay, "Filling the Biopharmaceutical Pipeline," Chemical Market Reporter, 10/30/00 FR 33.

<sup>2</sup> Jurgen Drews, quoted in Michael J. Harris, "BIO CEO and Investor Conference," BIOWORLD Today, 2/16/00.

<sup>3</sup> Biotechs—The Next Boom?," Business Wire, 2/07/2000.

<sup>4</sup> Feldbaum, Carl, quoted in Shelley Emling, "Biotech companies seek funds," Atlanta Journal-Constitution, 2/21/02, F1.

<sup>5</sup> Emling, Shelley, "Biotech companies seek funds," Atlanta Journal-Constitution, 2/21/02, F1.

<sup>6</sup> Quoted in Taylor, Paul, "Biotech groups raise \$12.9 billion," Financial Times, 1/24/02.

<sup>7</sup> Cohen, Ron, quoted in Alex Philippidis, "For Biotechs hopes..." Westchester County Business Journal, 2/25/02, p. 3.

<sup>8</sup> Sherrid, Pamela, "Best Bets in Biotech," U.S. News & World Report, 1/21/02, p. 33.

# Monoclonal Antibodies, Anyone?

## The Medical Biotechnology Industry (Continued)

**Acquisitions by major drug makers.** Drug companies have been acquiring or partnering with biotechnology companies in order to get at their expertise in genetic research, biochemistry, and related disciplines. Although the poaching had slowed in late 1999 when valuations of biotech stocks soared to unattractive acquisition prices, now that those prices have dropped, more pharmaceutical companies will likely increase acquisition of firms in genomics/proteomics over the next two to three years.

**Consolidation.** In 1999, the medical biotech industry was undergoing its biggest round of consolidation since Genentech founded it in 1976. In 1997 there were 31 mergers and acquisitions, and in 1998, 29. For 1999, one analyst estimates that there were 91 biotechnology combinations.<sup>9</sup> In 2001, the merger trend speeded up as acquisitions became cheaper after biotech stocks fell, hurt by a downturn in tech stocks in general. Some biotech firms had the necessary capitalization to compete with pharmaceutical firms for other biotech companies. Some of these acquisitions were also a way to get cash.<sup>10</sup>

**Challenge to large drug makers.** The largest U.S. biotechnology companies are starting to become challenging new competitors to the major pharmaceutical firms, according to a survey by KPMG. They “are moving up the growth curve, gradually acquiring the skills and resources necessary to go it alone,” but “their ability to launch blockbuster drugs is currently limited by the lack of a global sales force, and co-marketing agreements with the pharmaceutical giants are still a necessity.” Some “long-established, synergistic regional clusters of smaller biotechnology firms have accumulated massive competitive advantage in the form of tacit knowledge and patented inventions,” notes KPMG. With some biotechs boosted by mergers and with capital available to them, more of them are now in a position where they have enough money to strike out on their own.<sup>11</sup>

**Stock price volatility.** Biotech stocks were overvalued in early 2000, but plunged in March of that year along with other tech stocks such as dot-coms. The biopharmaceutical industry is known to be attractive to momentum investors who exaggerate stocks’ ups and downs, and for short-sellers seeking profit in a stock’s decline. For example, in anticipation of a drug approval, ImClone’s stock soared to more than \$70 a share last fall, and then when the FDA rejected its cancer drug in December 2001, the stock dropped more than 60%, even though many analysts believe the drug will eventually get approved. Another example of volatility is a biotech fund that gained 64% in 2000, but lost 17.6% in 2001 and another 22.3% in first quarter 2002. By comparison, the S&P 500 index fell only 1.4% in the same year-to-date period.<sup>12</sup>

At an industry conference in January, the general feeling among analysts was that the economy would pick up this year. If that comes true, stocks of the smaller biotechs will be the first in the industry to benefit from the improved financial climate.<sup>13</sup>

### ■ The Credit Risk of Development Stage Biotech Companies

#### Strengths

**Rapid growth.** The industry has grown in rapid spurts and will likely expand for at least another two decades. Standard and Poor’s estimates the aggregate earnings growth rate of today’s profitable large-capitalization biotech firms will be approximately 24% a year over the next three to four years.<sup>14</sup> The number of lifesaving drugs on the market and in late-stage clinical trials is skyrocketing, with 40 new treatments in 1999, bringing the total for the 1990s to 370, up from 239 during the previous decade.<sup>15</sup> Ernst & Young predicts that biotech revenue, about \$28 billion in 2001, will grow by 15% to 20% annually for the next three to five years and then accelerate to 30% by decade’s end, when genomics finally begins to bear fruit.<sup>15</sup> Besides growth coming from developments in genomics, another driver may be the need for defense against bioterrorism, leading to the creation of new start-ups looking for therapeutic, diagnostic, and bio-agent detection products.

**Favorable demographic trends.** Two worldwide trends, the aging of the baby boomers and a longer life expectancy, should drive growth in the biopharmaceutical industry. Both of these trends are resulting in a population with an increasing proportion of the elderly, which account for two-thirds of prescriptions.

**Drug company partnerships.** Development stage biotech firms often receive funding and research contracts from big pharmaceutical firms. These large-cap drug firms in-license (license from other companies) about 40% of their product portfolio, with a portion coming from biotech firms. Initially, “Big Pharma” was able to get lucrative products

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<sup>9</sup> Ginsberg, Peter, “Biotechnology Sector Expected to Benefit from Heavy Consolidation Activity in 2000,” *Business Wire*, 1/24/00.

<sup>10</sup> Marcinkowski, V., “Biotech Merger Trend...,” *Dow Jones*, 12/14/01.

<sup>11</sup> “USA’s large biotech firms challenging...,” *Marketletter*, 5/28/01.

<sup>12</sup> Mantz, Beth M., “Tip Sheet,” *Dow Jones News Service*, 3/26/02.

<sup>13</sup> Virji-Geganath, “M&A order of the day...,” *BioVenture View*, 2/22/02.

<sup>14</sup> S&P Industry Surveys: *Biotechnology*, 12/20/01.

<sup>15</sup> Holmer, Alan F., quoted in “U.S. Drug Industry Gears Up for Record R&D,” *Chemical Market Reporter*, 2/7/00, p. 5.

<sup>16</sup> Sherrid, Pamela, “Best Bets in Biotech,” *U.S. News & World Report*, 1/21/02, p. 33.

# Monoclonal Antibodies, Anyone?

## The Medical Biotechnology Industry (Continued)

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for a pittance, but going forward, biotechs are becoming financially stronger and therefore, will be able to demand higher premiums for the drugs they have discovered.

One benefit of these partnerships is that biotechs are spreading the risk of bringing new drugs to market: they license out the earlier drug compounds for the sake of future royalties, milestone payments, and technical know-how about clinical development, regulatory process and manufacturing. Instead of keeping these compounds in-house and spending all of their cash for clinical development, they license out the products so they can use the revenue and expertise or partnerships to take advantage of other compounds they can generate from the technology platform they've developed.<sup>17</sup>

**Beneficial legislation.** The FDA Modernization Act, as well as a recent intellectual property protection bill, are fostering commercialization of biopharmaceuticals. The FDA has speeded up its review of applications for drug licensing.

**Non-cyclical tendency.** Like the pharmaceutical business, the biotechnology industry is not as susceptible as many other industries to economic cycles. Patients still need their prescriptions whether there is a recession or not.

### Risks

**High rate of bankruptcy.** Independent and entrepreneurial, development stage biotechnology firms pursue high-risk opportunities that apply cutting-edge science to practical problems, albeit with many disappointments along the way. "Failure is the norm."<sup>18</sup>

**Failure of a product in clinical trials.** Fledgling medical biotech firms are developing new medicines, and drug development can be stopped cold by the failure of a product in clinical trials.<sup>19</sup>

**Failure to achieve approval for licensing by the FDA.** Only one in ten biotech drugs will ever win final FDA approval.

**Need to keep raising money.** Some estimates are that as many as one-third of biotech firms do not have enough cash to last more than 12 months. Investors should check a company's financial statements to be sure that its "burn rate" will not exhaust the firm's cash before a new product can be brought through the costly and time-consuming clinical trials process.<sup>20</sup>

**Dependence on corporate alliances.** Investors should also check a firm's corporate alliances. Some of the best-financed emerging companies, with valuations in excess of \$2 billion, don't have the biggest drug pipelines in the business. Instead they have exceptional management teams and large scientific staffs which have proven their excellence by forging alliances worth hundreds of millions of dollars with multinational pharmaceutical companies. Of course, there's also a caveat: alliances can crumble, too.

**Risk of obsolescence and vigorous competition** from similar and substitute products.

**Lack of diversity.** Many biotech companies have a single-product, and if that one fails, it's devastating; therefore, it's important for a firm to have more than one drug in its pipeline.<sup>21</sup>

### ■ Summary and Outlook

The strengths of the development stage medical biotechnology industry include huge growth potential, the contributions of large drug companies towards revenue and partnerships, beneficial FDA legislation, and the non-cyclical nature of demand for pharmaceutical products. On the other hand, the risks of this industry include huge resource demand, lack of profitability, a high rate of bankruptcy due to failure of products in clinical trials or failure to obtain FDA approval, dependence on corporate alliances, risk of obsolescence, vigorous competition, and lack of product diversity within individual companies.

For as long as the bulk of companies in the medical biotech industry are in the development stage, their bonds and preferred stock will likely be rated as risky from a credit-analysis point-of-view. Meanwhile, the signs for revenue growth in this sector appear to be bullish for the long run. Eroding bureaucratic barriers in the U.S., rapidly advancing technology, and increasing demand for biopharmaceuticals on the behalf of aging baby-boomers should bode well for the sector for probably the next two decades.

*This article is the first part of a two part series. The second part will summarize insurers investment in biotechnology securities as well as other recent developments in the biotechnology industry.*

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<sup>17</sup> Mantz, Beth M., "Biotechs Maximize Rewards," Dow Jones News Service, 2/22/02.

<sup>18</sup> "USA's large biotech firms challenging..." Marketletter, 5/28/01.

<sup>19</sup> "Biotech Strategies," Investors' Digest, 5/18/01.

<sup>20</sup> "Biotech Strategies," Investors' Digest, 5/18/01.

<sup>21</sup> "Biotech Strategies," Investors' Digest, 5/18/01.

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