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Following is what will become a series of articles in the SVO Research Quarterly. Each issue will feature articles focusing on credit trends in specific industries. We hope you find these resourceful. Please let us know if you have a request for a specific industry.
Chris Evangel

Heavy Equipment Dealers

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In the 1939 children's classic, *Mike Mulligan and His Steam Shovel*, Mike, the operator, owned his equipment which even had a name, Mary Ann. However, the story does not mention from where and how Mike financed the purchase of Mary Ann, an issue of great interest to operators of heavy equipment. In today's world, financing can be obtained from wholesale dealers of heavy construction and agricultural equipment for backhoes, asphalt trucks, front shovels and soil stabilizers.

■ What is a Wholesale Dealer?

Wholesale dealers buy inventories on their own account which means they take title to the goods they sell and rent. They generally operate from warehouse or office locations and they may ship from their own inventory or arrange for the shipments of goods directly from the supplier to the client.

■ The Business Cycle

The heavy equipment industry is cyclical. The cycle reflects residential and commercial construction activity and in some cases, mining and agricultural industry capital spending cycles.

■ Benefits from Relationship with Equipment Suppliers

The SVO recognizes the operating and financial strengths related to the heavy equipment dealer sector. For example, consideration is given to the strong relationship and benefits that dealers receive from Caterpillar Inc. Independent dealerships that are best able to respond to local market conditions are critical to Caterpillar's business strategy. Caterpillar has traditionally

(Continued on page 2)

Inside this issue:

supported its dealers through exclusive territories and below market inventory financing. The latter is directly reflected in dealerships' improved interest coverages. Dealers also have access to below market inventory financing from the Cooperation of Tractor Dealers. This financing can be secured or unsecured and may benefit from structural seniority over designated debt if the former is at the operating sub level.

■ SVO Designations In The Heavy Equipment Dealer Sector

The SVO maintains designations on approximately one dozen wholesale dealers of heavy construction and agricultural equipment (SIC Code 5082/5083). Designations are in the NAIC-3 and NAIC-2 categories for firms that are primarily dealers of Caterpillar equipment located in the U.S. and overseas (Figure 1). The NAIC-2 category is assigned to obligations of high quality. Credit risk is low but may increase in the intermediate future and the issuer's credit profile is reasonably stable. This means that for the present, the obligations' protective elements suggest a high likelihood that interest and principal will be paid in accordance with the contractual agreement; however there are suggestions that an adverse change in circumstances or economic, financial or business conditions will affect the degree of protection and lead to a weakened capacity to pay. NAIC-3 is assigned to obligations of medium quality. Credit risk is intermediate and the issuer's credit profile has elements of instability. These obligations exhibit speculative elements. This means that the likelihood that interest and principal will be paid in accordance with the contractual agreement is reasonable for the present, but an exposure to an adverse change in circumstances or economic, financial or business conditions would create an uncertainty about the issuer's capacity to make timely payments.

In assigning a designation, the SVO takes into account many factors such as coverage levels, size, related to revenue base, assets, and balance sheet book equity. Other factors include the historical track records of equipment valuation and related reserves as well as the relationship and benefits that dealers receive from suppliers like Caterpillar Inc., the latter a solid investment grade firm and the worldwide market leader for heavy equipment.

(Continued on page 3)

Figure 1.
Insurer Investment In Heavy Industry Bonds Filed with the SVO**

Issuer Number	Issuer Name	Insurer Investment ($000's)	NAIC Designation
14422*	Carolina Tractor & Equip. Co.	21,484	3
14755*	Cashman Equip Co.	1,000	3
30281#	Fabick John Tractor Co/FabickTractor/Fabick Bros Equip/Fabick Machinery/Etc/	8,571	3
39758#	Gregory Poole Equip Co.	28,571	3
47030#	James T Hawthorne/Dorothy L Hawthorne	5,037	3
74875@	Quinn Group Inc.	23,130	2
74966*	RPC Inc.	120,103	2
84604#	Southworth-Milton Inc.	3,800	2
88507#	Thompson Tractor Co. Inc.	4,600	2
93045#	Wagner Equip Co.	98,200	2
96143Q	Westrac Equip Pty Ltd.	95,000	3
96255*	Whayne Supply Co. Ky	10,000	2
98472#	Yancey Bros Co.	74,300	2
TOTAL		**493,797**	

** *Data as of June 30, 2005.*

Heavy Equipment Dealers (Continued)

■ Designation Upgrades In The Cards?

Due to the improvement in the economy, heavy equipment dealers' operations have strengthened resulting in requests to the SVO to consider upgrading the designations of debt securities, especially for those with NAIC-3 designations. As mentioned, an SVO designation is meant to reflect a company's overall ability to service principal and interest on a timely basis. For a company that exhibits cyclical profitability and cash flows such as in this sector, the designation is meant to apply throughout all phases of a normal cycle. In consideration for an upgrade of a designation, an equipment dealer would have to demonstrate improving long term business prospects as well as the ability to generate interest and cash flow coverage levels above the median for its designation category during the strong and weaker parts of the cycle. Improved balance sheet strength and financial flexibility would also be a significant upgrade factor.

Size, related to revenue base, assets, and balance sheet book equity can serve to constrict the upside on a designation. This is especially true in this sector where dealers tend to serve limited geographic regions and are thus exposed to that locality's economic health and level of construction activity. Flexibility to shift equipment inventories from weak geographic markets to strong localities is limited. The broader a dealer's diversity of end markets, such as commercial construction, residential construction, mining, and agricultural, the greater its ability to withstand potential volatility in any one of these end markets. Recurring parts and service revenues, in some cases representing near 50% of total revenues, can also serve to partially offset volatility in revenue related to new equipment sales. Margins also tend to be higher. However, certain equipment dealers do not have a diverse enough revenue base to fully offset concerns in this regard. Many dealers, as private entities, do not have access to equity markets and some, including S-corporations, can upstream significant dividend payouts. This restricts growth in relatively small equity bases which limits overall financial flexibility for the dealer, especially in periods of operating and/or financial stress.

■ Recent Trends

Rental revenues are a growing portion of total dealer revenues with many dealerships focused on setting up new rental outlets. Margins here are also stronger than traditional equipment sales. The rental trend is tied to the introduction by the industry of more compact, lower priced equipment over recent years with new rental competitors gaining market share. Over the next five years, rental equipment is expected by some to double its present market share versus equipment sales. Dealer strategies and plans to grow their rental networks, including new financing requirements are all important factors for the SVO to analyze when new issues are filed.

The establishment of new rental subsidiaries also raises important accounting issues. A rental subsidiary that sources its equipment from the affiliated sales subsidiary can generate extra profits for the consolidated entity but also can decrease consolidated free cash flows. Such sourcing of rental equipment above wholesale cost can also up-front profits at the expense of future rental income. Traditionally, rental equipment has been classified as a long term fixed asset. However, auditors allow the classification of rental equipment as current inventories if there is expectation to sell the equipment after a limited rental period. Residual risk issues arise related to the percentage of inventory cost the dealer classifies as cost of goods sold in tandem with rental revenues. Too small a percentage can leave excess inventory valuation that might generate write-downs at some future time if market pricing weakens.

■ Looking Forward

The SVO anticipates that 2005 will be a healthy year for equipment dealer profits. However, external financing requirements for inventory buildup may actually reduce balance sheet strength for some dealers. In addition, rising interest rates may eventually slow down construction activity. These positive and negative trends will all be incorporated into any upgrade decisions for this particular sector.

Use of Financial Derivatives by Insurers

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■ INTRODUCTION

Insurance companies are uniquely exposed to a variety of risks arising from their risk-bearing function (underwriting risk) and their financial intermediation role (market/ financial risk). Risk pooling and asset-liability management, the standard and traditional responses to these risks are not by themselves sufficient. Risk pooling (aggregating independent risks by writing insurance on a large number of policyholders) does not completely eliminate underwriting risk through diversification. Traditional asset-liability management (matching asset and liability cash flows) is a limited and expensive tool leaving insurers exposed to significant systematic or financial risk. As a result, insurers have turned to financial derivatives to enhance and upgrade their arsenal of risk management techniques.

■ FINANCIAL DERIVATIVES MARKETS

The appetite for financial derivatives has increased greatly since the early 1990s and companies now have a plethora of choices from a wide variety of contracts to manage nearly all kinds of financial risk exposures. The contracts range from standardized exchange-traded derivatives to highly customized over-the-counter (OTC) contracts tailored for a specific buyer.

The types of derivatives discussed in this article are:

- ***Options.*** An option is a contract that provides the buyer (option holder) the right but not the obligation to enter into a transaction (buy or sell) with the seller (option writer) on, or before, a specified date in the future. The two types of options are calls and puts. Call options give the buyer the right to purchase an underlying asset at a specified price. The seller (writer) is obliged to sell if the option is exercised. Conversely, put options give the buyer the right to sell an underlying asset at a specified price. The seller (writer) of a put option is obliged to buy from the buyer (holder) of the option if the option is exercised. Options are purchased in the over-the counter (OTC) market or traded on an organized exchange. A type of OTC option is a cap. A cap is designed to protect the buyer (holder) from rises in interest rates over a certain level. If the interest should exceed the pre-agreed level (cap rate) the seller (writer) makes payments over the life of the loan (typically between 1 and 7 years) equal to the difference between the interest on the loan and the cap rate. The exact opposite of a cap is a floor. A floor is designed to protect the buyer from declines in interest rates. If the interest should fall below a certain level (floor rate) the seller, as in caps, makes up the difference between the prevailing rate and the floor. Collars are combinations of both a cap and a floor specifying both the upper and the lower limits for the interest rate in order to protect the buyer from interest rate fluctuations.

- ***Swaps.*** Swaps are private contracts between two counterparties agreeing to exchange streams of cash flows according to a predetermined rule that reflects interest payments and may also reflect amortization of principal. Swaps are categorized according to the nature of the cash flow streams being exchanged. In an interest rate swap, interest rate payments are exchanged on some predetermined amount (notional amount). Depending on the type of interest rate payments being exchanged, interest rate swaps can be either a fixed-to-floating-rate swap (the most popular type) or a floating-to-floating-rate swap. A currency swap is exactly like an interest rate swap, with the only difference being that the payments exchanged are in different currencies. Finally, a total return swap is a swap in which two parties enter in an agreement whereby periodic payments over the specified life of the agreement are swapped. One party makes payments based upon the total return of a specified reference asset. The other makes fixed or floating payments as with an interest rate swap. Both parties' payments are based upon the same notional amount. The reference asset can be almost any asset, index or basket of assets.

- ***Forwards.*** These are contracts negotiated over the counter between two counterparties. Forwards oblige one counterparty to sell and the other to buy a specific underlying asset at a predetermined price at an agreed upon future date.

- ***Futures Contracts.*** Futures contracts are similar to forwards in that they also involve the obligation to buy or sell an underlying asset at a prespecified price and future date. The fundamental difference is that futures contracts are standardized and listed and traded on formal exchanges. A clearing house manages and coordinates all contracts and guarantees delivery or settlement. Futures contracts are settled daily and require a maintenance margin thus eliminating credit risk. Futures contracts have the advantage of providing very high liquidity.

(Continued on page 5)

Use of Financial Derivatives by Insurers (Continued)

Globally, in the first quarter of 2005 in exchange-traded derivatives, the combined value of trading in interest rate, stock index, and currency contracts rose by 19%, to $333 trillion. The interest rate market was by far the most active of all market segments. This high activity in interest rate products was conceivably the result of the increased uncertainty over long-term rates, as bond markets sold off in the months of February and March. For OTC derivatives, the latest data available (year-end 2004), reveals that notional amounts outstanding were up by almost 13% for the year, to $248 trillion. Gross market values rose by 43%, to $9 trillion for 2004 as of the end of December. While credit default swaps are not within the scope of this article, it is worth mentioning that they were the most dynamic component of the OTC market during 2004 with notional amounts over $6 trillion.[1]

■ The Use of Financial Derivatives by Insurers

Insurance companies are, comparatively speaking, highly leveraged firms. They raise most of their funds by creating liabilities in the form of specialized contracts. These funds that insurers receive from policyholders are then invested in financial and real markets. This activity exposes insurers to systematic or financial market risk. These external market factors can affect both sides of the balance sheet. On the liabilities side the major concern is with liquidity risk, while on the asset side insurers are facing risks inherent in investment oin the capital market. Derivative instruments provide a wide array of hedging strategies to an insurer to manage almost all types of risks and chances to approximate the optimal balance in the opportunity/risk profile of its investment portfolio.

Life insurance companies raise funds by issuing products such as life insurance, annuities, and guaranteed investment contracts (GICs) and they invest the funds they raise primarily in publicly traded bonds. Life insurers also invest heavily in structured securities and privately placed bonds and only secondarily in stocks. Due to their investment profile, life insurers are highly exposed to changes in interest rates. Therefore, they tend to use derivatives to manage their interest rate risk. The most basic derivative portfolio of a life insurer contains a mix of options, caps, floors, collars, interest rate swaps, forward rate agreements and futures positions on bonds.

Property and casualty (P/C) insurers issue debt in the form of policies covering types of risks such as accidents, fires, weather-related catastrophes and lawsuits arising from products that are defective, malpractice, etc. Property and casualty insurance companies invest a larger portion of their funds, compared to life companies, in equities and thus are more likely to be involved in equity derivatives and equity index options.

Figure 1.
Life Insurers Active in Derivatives, by Quartile

Quartile* (Total Assets)	# of Active Life Companies	Active/All Life Insurers	Total Active
Quartile 1	0	0.00%	**0.00%**
Quartile 2	0	0.00%	**0.00%**
Quartile 3	13	1.21%	**9.09%**
Quartile 4	130	12.10%	**90.1%**
Total Active	**143**	**13.31%**	**100.00%**

**Quartile distribution calculated by size (measured by total assets) of Insurers.*
Source: Schedule DB, 2004 Annual Statement.

Although a growing number of insurance companies have been incorporating derivatives in their overall strategy to mitigate risks and improve profitability, the overall proportion of insurers that are active in derivatives has remained relatively small. Among life insurers, 13.31% or 143 companies used derivatives during 2004 (Figure 1). Figure 1 also reveals that size, as measured by total assets, is an important factor in determining derivatives usage. Larger insurance companies are more likely to use derivatives than small insurers—90.1% of all insurers active in derivatives belong in the 4th quartile with the rest 9.09% belonging in the immediate lower 3rd quartile (Figure 1), with usage in those large insurers being far more pervasive. The explanation of this size effect can be traced to the significant economies of scale associated with running derivative operations. Only from a certain minimum size and above do companies have the necessary resources to make derivative activities viable from a cost perspective.

In the P/C sector of the industry, 101 companies or 3.68 % of all P/C insurers were active in derivatives in 2004

(Continued on page 6)

Figure 2.
P/C Insurers Active in Derivatives, by Quartile

Quartile* (Total Assets)	# of Active P/C Companies	Active/All P/C Insurers	**Total Active**
Quartile 1	4	0.14%	**3.96%**
Quartile 2	11	0.40%	**10.89%**
Quartile 3	15	0.55%	**14.85%**
Quartile 4	71	2.59%	**70.30%**
Total Active	**101**	**3.68%**	**100.00%**

**Quartile distribution calculated by size (measured by total assets) of Insurers*
Source: Schedule DB, 2004 Annual Statement.

[1] BIS Quarterly Review, June 2005.

(Figure 2). In terms of size, while the distribution is skewed in favor of the larger companies, with 70.30% of all P/C insurers active in derivatives belonging in the 4th quartile and 14.85% in the 3rd quartile, P/C insurance companies are more evenly distributed than their life counterparts (Figure 2).

As expected, the data confirms that life insurance companies tend to use derivatives more than P/C companies. Total derivatives contracts opened and/or written by life insurers amounted to about $22.8 billion (fair value/current value) as of year-end 2004 (Figure 3 on page 6) while for P/C companies the same total was a substantially lower $2.5 billion (fair value/current value) (Figure 4 on page 7).

For life insurers, swaps were markedly the most popular type of contract in 2004 with 99 companies active in swaps for a total of $4.4 billion (Figure 3). One of the reasons that life insurers may use swaps is to hedge the duration gap between illiquid private placements and GICs, which are shorter term and interest rate sensitive. The next most popular contract was call options owned with 73 companies active totaling about $2.8 billion (Figure 3). Life insurers were also very active in futures contracts with 78 companies trading in long and short futures. Other positions with a relatively large number of active companies were forwards (32 companies), call options written (25 companies) and caps owned (21 companies) (Figure 3). The large number of companies active in writing call options could be explained by the fact that life insurers may write call options in an effort to flatten out the relationship between interest rate and insurance company equity value thereby addressing their positive equity duration gaps. Another reason that may compel life companies to write call options is to hedge liabilities linked in someway to the equity markets, such as equity-indexed annuities.

For P/C insurers active in derivatives, writing call options was the prevalent activity (28 companies) in 2004 (Figure 4). P/C companies that hold a significant amount of stocks in their portfolio can hedge against the volatility of the equity markets and also generate income by writing options. The income generation strategy is evidenced by the fact that from the total amount of $8.87 million of options written (year-end 2004) the largest part, $7.26 million was dedicated for that purpose. Other positions that p/c insurers were active were call options owned (13 companies), swaps (19 companies) and futures contracts (total 10 companies for short and long positions) (Figure 4). Based on the transactions values and the degree of activity observed, it seems that P/C companies have been primarily active in equity options and in short positions in equity and bond futures.

■ CONCLUSION

Just like other financial firms whose use of derivatives has grown over the last decade, insurers are more eagerly incorporating derivatives in their overall business and investment strategies. As insurers' portfolios become more involved, and various risks, both transparent and hidden, threaten insurance companies' financial health, derivatives can be a very potent and cost-effective risk management tool. Imprudent use though, of such a sophisticated and highly complex financial instrument, can indeed increase the risks facing an insurance company and jeopardize its solvency. Only intensive and effective scrutiny by the regulatory community can ensure that derivatives transactions undertaken by insurers will be used for risk minimization and greater control over investment returns and will not negatively impact the insurers' operations.

While it is understood that insurers can use derivatives to hedge risks they can also use derivatives for income enhancement or speculation. The data (Figures 3 and 4) suggests that life insurers are using derivatives for hedging purposes, specifically to manage interest rate and exchange risk, while P/C insurers are more active, in comparison, in income generating derivatives and especially in equity and foreign exchange derivatives. It is well understood that speculative use of derivatives can increase the overall risk profile of an insurance company. However, it appears that derivatives are employed to manage risk rather than speculation.

Use of Financial Derivatives by Insurers (Continued)

Figure 3.

CONTRACT TYPE	AMOUNT	LIFE INSURANCE COMPANIES
Options Owned	*Fair Value*	*Number of Users*
Calls	$2,826,919,286	73
Puts	$157,210,681	17
Caps	$96,107,768	21
Floors	$183,307,012	12
Subtotal Hedging	$2,816,664,999	81
Subtotal Other	$446,879,746	21
Total Options Owned	**$3,623,544,745**	**96**
Options Written	*Fair Value*	*Number of Users*
Calls	$156,802,239	25
Puts	$29,741,329	10
Caps	$0	0
Floors	-$2,723,947	3
Subtotal Hedging	$164,510,917	15
Subtotal Income Generation	$1,510,383	11
Subtotal Other	$17,798,321	7
Total Options Written	**$183,819,621**	**30**
Collar, Swap and Forwards Open	*Fair Value*	*Number of Users*
Collar	$33,004,443	3
Swap	$4,406,905,135	99
Forwards	$511,165,423	32
Subtotal Hedging	$4,859,139,085	97
Subtotal Other	$91,935,917	33
Total Collar, Swap and Forwards Open	**$4,951,075,002**	**107**
Futures Contracts Open	*Current Value*	*Number of Users*
Long Futures Positions	$6,021,146,702	39
Short Futures Positions	$8,018,142,560	39
Subtotal Hedging	$10,597,416,099	43
Subtotal Other	$3,441,873,161	13
Total Futures Contracts Open	**$14,039,289,260**	**54**
TOTAL DERIVATIVE CONTRACTS	**$22,797,728, 628**	**--**

Source: Schedule DB, 2004 Annual Statement.

Use of Financial Derivatives by Insurers (Continued)

Figure 4.

CONTRACT TYPE	AMOUNT	P/C COMPANIES
Options Owned	*Fair Value*	*Number of Users*
Calls	$18,606,723	13
Puts	-$3,134,850	10
Caps	$0	0
Floors	$0	0
Subtotal Hedging	$5,270,206	9
Subtotal Other	$10,201,667	7
Total Options Owned	**$15,471,873**	**16**
Options Written	*Fair Value*	*Number of Users*
Calls	$8,725,077	28
Puts	$146,042	5
Caps	0	0
Floors	0	0
Subtotal Hedging	$1,591,506	9
Subtotal Income Generation	$7,257,113	19
Subtotal Other	$22,500	1
Total Options Written	**$8,871,119**	**28**
Collar, Swap and Forwards Open	*Fair Value*	*Number of Users*
Collar	-$15,042	1
Swap	-$40,311,409	19
Forwards	-$37,665,132	11
Subtotal Hedging	-$83,672,547	21
Subtotal Other	-$5,690,964	12
Total Collar, Swap and Forwards Open	**-$77,981,583**	**27**
Futures Contracts Open	Current Value	Number of Users
Long Futures Positions	$198,349,800	3
Short Futures Positions	$2,315,327,416	7
Subtotal Hedging	$2,498,110,831	7
Subtotal Other	$15,566,385	1
Total Futures Contracts Open	**$2,513,677,216**	**8**
TOTAL DERIVATIVE CONTRACTS	**$2,460,038,625**	**--**

Source: Schedule DB, 2004 Annual Statement.

The Computer Industry in 2004: Review and Outlook

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In the 1970's the must have equipment that college students took to school was the electric typewriter. Remember those? They were a great improvement on the manual ones. True, they were heavy and bulky, but you didn't have to pound on the keys to make them type, your fingers never got stuck between the keys, and it came with correction ribbon. No more messy liquid paper! Students were not the only ones who were grateful for this advancement; secretaries were too. However, the advancement was very limited. The electric typewriter couldn't compute, couldn't handle extensive editing jobs, and couldn't play music. What a long way we've come since then!

■ INTRODUCTION

The computer today is taken for granted as a prerequisite tool for modern business operation, as well as a necessary tool/entertainment/communication device in the majority of U.S. and other developed economies' households. This state of affairs represents only one of the most recent blips on the time scale of human innovation, but it has rapidly transformed both the workplace environment and the culture, not to mention national economies, primarily during the last twenty-five years. In the process, computers and related innovations have ushered in and facilitated the evolution of the United States and other developed nations from heavy industrial based to information/technology based economies. During 2003, according to the U.S. Department of Commerce, Information Technology (IT) producing industries accounted for 8% of Gross Domestic Product, accounted for 4.4% of private employment in the United States in 2002, and IT industries employees enjoyed average annual wages in 2002 of $67,440 per capita, which was 84% higher than employees in other private industries.

The advent of integrated circuits, allowing the development of compact personal computers signaled the acceleration of the transformation. Constant improvements in the price/ performance characteristics of the semiconductors, as well as continual improvements in manufacturing returns to scale as volumes increased, resulted in vast new consumer markets opening, at lower price points available to larger segments of consumers. This phenomenon, of better performance and utility at lower prices continues today, extending the reach of this technology to larger segments of the economy.

Following is a brief chronology of the computer since its relatively recent appearance. The evolution of the computer industry can be visualized from the perspective of before or after the introduction of the personal computer, in 1977 by Apple Computer, and the introduction of which was a catalyst for sweeping change in the structure of the economy.

■ HISTORICAL BACKGROUND

Prior to World War II, efforts to improve the capabilities of mechanical calculators were being made by various researchers in academic environments, but the War increased the urgency and resources focused on the problem. The Defense Department, needing faster ways to compute its firing and ballistic tables (for calculating trajectories of projectiles), was supporting research being done at the University of Pennsylvania. They succeeded, in 1946, in developing the first operational, non-mechanical computer. Dubbed ENAIC (Electronic Numerical Integrator and Computer), it was completed at a cost of $447M and contained 18,000 vacuum tubes, and had dimensions of 8 feet by 10 feet, and weighed 30 tons. In operation, it could perform 5,000 additions and 360 multiplications per second, allowing it to compute a trajectory in 30 seconds. In the years following, additional advances were made, using this 1st generation vacuum tube technology, including the introduction of stored programs, and using magnetic tape (rather than punched cards or tape) to store input or output of the machines. IBM, in 1953, introduced its Model 701 and gained early dominance in the industrial computer market.

The invention of the transistor, at Bell Laboratories in 1947, led to the development of 2nd generation computers. By substituting transistors (electrical circuitry mounted on germanium or silicon "chips") for vacuum tubes, more reliable, smaller, lower costing computers could be built, and better reliability could be had because the transistors did not burn out as frequently as vacuum tubes. At the same time, different uses for computers were being developed; in addition to calculations, computers increasingly were being used for data processing purposes, of particular value to banks and insurance companies, which maintained large customer data bases. Various types of peripheral equipment, such as key punch and card sorting machines, along with the need to maintain computer installations in air conditioned environments (because of the heat generated by the machinery), resulted in large dedicated space requirements for computer installations. Advances continued, with development of tape drives for input and output. Programs, instructing the computer to perform various tasks, involved moving circuit boards to various positions and providing input with punch cards, the output being produced on tape drives. Since the computer could only perform one function at a time, jobs

(Continued on page 10)

to be performed had to be queued in order of priority. IBM continued to dominate the industry, introducing its Model 1401 business computer in 1959, along with associated peripheral equipment, and sold 10,000 systems during its lifespan. Costs of these systems, including associated equipment and environmental expenditures running into several million dollars per installation, involved major capital spending decisions by buyers.

The development of the integrated circuit, in 1958, at Texas Instruments Corporation, led to the development of 3rd generation computers. Integrated circuits, which essentially are miniaturized transistors, mounted on silicon "chips", in addition to enhanced performance, allowed significant less space requirements because of the much smaller size of the computer systems. During the same period, programming languages were being developed (FORTRAN, COBOL), eliminating the need for operators to input instructions to the computers with cards or moving circuits. Development of the computer languages also allowed development of operating systems, and multiprogramming where the machine could perform various tasks simultaneously as it allocated execution of jobs based upon available processor capacity. In 1965, IBM introduced its System 360, the first family of computers, which were compatible with each other. Because of their multitasking capabilities, fewer systems were needed to service the needs of corporations and the costs per installation were measured in the hundreds of thousands instead of millions of dollars. Concurrent development of floppy discs for data storage also increased flexibility and storage capacity of computer systems. Computer systems of the time, although far advanced from earlier ones, still required large dedicated installations to service the mainframe and associated peripheral equipment, as well as storage capacity, which had taken the form of large tape or floppy disk libraries.

Invention of the microprocessor, by Intel in 1971, ushered in the 4th generation of computer technology. Continual advances in integrated circuit technology, particularly in miniaturization, began to prove the validity of Moore's Law (which predicted that the number of transistors which could fit on a chip would double every 18 months). By the early '70's, the technology had advanced to the point where thousands of circuits (VLSI: very large scale integration), had become the state of the art. These developments paved the way for smaller computers and the introduction, in the mid-seventies, of the first computers, using the Intel 8080 chip processing information 8 bits at a time, which were compact enough to fit on a desk top. Apple Computer, as well as other startups, using the 8 bit chips, introduced the first personal computers in the mid seventies for sale to retail customers, with the Apple II debuting in 1977. The Intel 8086 chip (16 bit), introduced in 1978, increased the processing power of personal computers (PCs) by an additional factor of ten. By the end of 1978, total personal computer in use in the United States had passed 500 thousand. Contemporaneous development of user-friendly software, supplanting BASIC which was not, allowed the performance of office tasks using the first spreadsheet and word processing programs, and facilitated wide scale adoption of personal computers by business organizations. Video games, as would be expected given the new technology, were not far behind. *Space Invaders* was introduced in 1978, followed by Atari's *Asteroids* in 1979 and *Pacman* in 1981, for arcade video game computers. Adaptation of games to PCs, as processor speeds and graphics improved, added to the PCs' potential markets.

The collaboration of IBM (by allowing open standards for its PCs, in order to encourage 3rd party suppliers to speed development time) and Microsoft (with its development of the PC operating system: MS-DOS, understandable by lay persons), as well as its $2,880 pricing for a basic processor opened large potential markets for PCs. By 1983, more than 10 million computers were in use in the United States. Advances in chip capabilities, as well as steadily declining prices, allowed a faster pace of introductions of PCs with better price/performance characteristics; the IBM PC XT was released in 1983.The PC AT (16 bit), introduced in 1984, was marketed as a system, (including a 10Mb hard disk, 128K of random access memory, a 5 ¼ inch floppy drive a mono monitor and a printer), for $5,000. During the period, with PC architecture standardized around the IBM/MS-DOS model, competition increased as other electronics companies (Compaq, Hewlett Packard, Tandy, and a host of smaller companies) introduced their "clone" models and peripheral equipment, which would operate in that environment; 30 million computers were in use in the US by the end of 1986 and 50 million by 1989.

Widespread adoption of PCs by business as a prerequisite for an efficient office environment, rapidly led to the decline of the mainframe computer as the hub of information processing in the workplace. The introduction of Windows 3.0, by Microsoft in 1990, followed by several upgrades from 1995 through 2000, further increased the user friendliness of PCs, and continuing introductions of faster processors by Intel resulted in PCs having the power to perform all but the most intensive data processing applications. Increasing user friendliness of both the hardware and software, as well as downward trending prices for the systems generated increasing interest in larger segments of the consumer markets. Since the early

(Continued on page 11)

The Computer Industry in 2004: Review and Outlook (Continued)

'90s the combination of improved Windows operating systems, combined with more powerful but competitively priced Intel processors, has led to regularly recurring upgrade cycles, complemented by rapidly falling prices. The development of the Internet, with consumer access through Internet Service Providers, was another important catalyst for the explosion of demand for computer systems, from households, during the 2nd half of the 1990's. Vast incremental increases in computing power and data storage capabilities of PCs were spurred on by the requirements of improved graphics and access to the Internet. Increasing capabilities of PCs, with each improvement in chip technology, made large corporate mainframe systems redundant.

A new corporate computing landscape evolved, with the development of network computing, where local area networks operated independently of the corporate mainframe, using high-powered LAN servers as resources for memory storage and access to other areas of the corporation. During the late 1980s and '90s regularly occurring upgrade cycles (generally every three years, with the introduction of faster processors and improved Windows releases) spurred the growth of the computer industry. Business and consumers equipped themselves with the latest technology to handle the new requirements, encouraged by rapidly declining prices, which made the new systems increasingly affordable to larger segments of the market. According to IDC (as cited by S&P), which follows developments in the industry, the average PC system price declined 9.5% in 1999 to $1,699, another 6.1% in 2000, and another 10.5% in 2001, averaging $1,429 in that year. Currently, sub $1000 computer systems offerings are commonplace, with all of the features necessary for Internet access and data storage, as well as customary office functions. Growth in PC shipments averaged 20% annually during the first half of the 1990's. Another large surge in computer demand occurred in 1999-2000, when sales increased 23% and 15% respectively, spurred by the need to upgrade systems to handle date functions in the new millennium. Once that demand had been satiated however, corporate demand fell significantly as capital spending declined during the economic downturn of 2001, and worldwide unit sales declined 4.1% in that year.

■ The Current Industry Landscape

Because of their vastly increased capabilities compared with earlier models, the computer hardware industry's sales today are dominated by PCs. Personal computer revenues accounted for 78% of total industry sales in 2004, according to S&P. The corporate mainframe environment of the '70s and '80s has been largely supplanted by a new model, incorporating networks of personal computers, which are interconnected using higher-powered servers. Servers sales, in 2004, accounted for 22% of industry revenues and work stations, the remaining 2%.

During 2003, according to S&P (citing IDC data), worldwide sales of PCs had recovered from the depressed levels of 2001, increasing 1.5% in 2002 to an estimated 136 million units worth $178 billion, followed by 154 million unit sales in 2003, worth $228 billion. Unit price declines kept industry revenues gains at modest levels over the two-year period, increasing only 6% from $215 billion of revenues booked in 2001, due to continuing unit price declines. Because most PC systems, regardless of manufacturer (with the exception of Apple Computer, which uses a different operating system), use common Microsoft Windows based operating systems, Intel microprocessors and standardized components (Wintel products account for an estimated 85-90% of PCs worldwide), the products have become commoditized, with intensely competitive pricing, and continuing downward pressure on gross margins. This has resulted in a rapid pace of industry consolidation, in order to lower costs through returns to scale in manufacturing and marketing. According to S&P, the top ten PC manufacturers in 1992 accounted for half of worldwide PC sales, while by 2003, 45% of PC sales were accounted for by the top five manufacturers, led by Dell's 17%, followed by Compaq/ Hewlett Packard's 16%, IBM's 7%, Fujitsu Siemen's 4% and Toshiba's 3%.

Servers, which are more powerful computers, used to interconnect and act as a memory and data resource for networks of PCs, accounted for $46 billion of industry revenues in 2003, up 3.7% from the low 2002 levels, but still below the previous peak levels of $60 billion in 2000. Server revenues had plummeted for two consecutive years (down 17% in 2001 and down 12% in 2002), following the peaking of the Internet buildout, the failure of several Internet Service providers, and the downturn in IT spending during the recession as well as reflecting falling unit prices. Included in this category, at the higher end of the range, (accounting for 27% of server revenues in 2003), are the larger mainframe systems, and supercomputers, used for more demanding corporate level applications. Worldwide server markets are more consolidated, with the top five manufacturers accounting for 86% of sales, led by IBM's 32%, followed by Hewlett Packard's 27%, Sun Microsystems' 12%, Dell's 9% and Fujitsu's 6%.

At the very top end of the computing power range are workstations, used in engineering, computer aided design, scientific, 3-D animation and other demanding

(Continued on page 12)

applications, which accounted for $5 billion (2.5%) of industry revenues in 2002, down 23% from 2001 spending, which had declined 26% from 2000. Workstation sales revenues have been negatively impacted by declining per unit prices and substitution of more powerful high end PCs for some of their functions.

■ CURRENT OPERATING MODELS

The PC industry, which accounts for most of computer industry revenues, has become "commoditized", that is for the most part, industry participants are offering similar products and the producer's ability to profitably compete is determined by achievement of superior cost/distribution/ or marketing strategies, in order to be able to generate positive earnings margins in an unforgiving pricing environment. Microcomputing technology, with the exception of a small segment of the market held by Apple Computer, has accepted on the "Wintel" system ad the standard. Wintel combines Intel processors with Microsoft Windows operating systems. Reinforcing the dominance of the two, most peripheral equipment and software, produced by independent companies, are designed to work with the Wintel architecture.

Outsourcing of manufacturing, to contract manufacturers, of the lower value added assembly functions has become commonplace. In early 2002, IBM, the inventor of the PC, agreed to sell its PC manufacturing facilities in the U.S. and Europe to Samina-SCI Inc, a large contract manufacturer, which also was a major assembler of PCs for Hewlett-Packard. Gateway Computer, the 4th largest seller of PCs in the U.S. with 3.5% of the market, bowing to its inability to compete against larger manufacturers' economies of scale, recently announced that it too would close several manufacturing facilities as well as underperforming retail outlets in addition to announcing, in January of 2004, its purchase of Emachines, another smaller PC producer, probably to build scale.

The current low cost producer, Dell Computer, in addition to the advantage of its huge scale economies, has been able to generate this status through a business model, which minimizes costly inventories and markdowns of slow moving inventory, by selling only directly over the Internet or by telephone to customers. It manufactures its systems, using off the shelf components manufactured by other providers, minimizing its R&D expenses. It has avoided selling to large retail chains, thus experiencing the retail markup for itself, and enjoy the competitive advantage of being able to immediately pass through any lower component costs, while avoiding the destructive (for profitability) price cutting of old inventories in retail channels when changes occurred.

Figure 1. Insurer Investment in Large Domestic Computer Companies ($Millions)

	Bonds	*Stocks*
IBM	3,709.8	771.6
Compaq/ Hewlett-Packard	1,544.8	381.7
Sun Microsystems	261.7	35.7
Dell	244.5	10.6
Gateway	15.6	4.2
Apple	—	52.9

Sources: Schedule D's and CUSIP Service Bureau.
Data as of June 30, 2005.

According to S&P, close to 40% of the U.S. PC market still belongs to a myriad of "no name" manufacturers, who buy standardized computer components and assemble them, selling them at low prices to their customer base, which is primarily the small business markets. In addition to low prices, they add value for their customers, by providing prompt local service, installation and network design.

■ CURRENT SALES TRENDS/ OUTLOOK

Following a 10.9% year-over-year unit sales increase in global PC shipments during the first quarter of 2005, growth increased further during the 2nd quarter to 16.6% (11.7% in the United States). Corporate IT spending, which had been depressed during the past two years as companies cut capital projects to weather the recession, is beginning to show signs of life. However, according to S&P, demand from the corporate sector remains uneven at best.

The lack of new "killer applications", such as new software releases, which demand higher memory or computer processing speeds, has resulted in less urgency to re-equip. The weak economy triggered constrained IT budget resources for the past two years, and since corporate purchases account for about two-thirds of total PC demand, overall PC demand was subdued. Although the awaited 3rd year replacement cycle, which had been expected to begin during 2002 (following the heavy spending in 1999), fizzled, better economic growth beginning late in that year encouraged some loosening of corporate spending budgets. However, as maintenance costs for aging computer fleets mount, a more sustained corporate replacement cycle has begun. Corporations have begun incrementally replacing portions of their installed computer base in planned phases, in contrast to the last cycle, which was characterized by the

(Continued on page 13)

rush to have entire corporate IT resources Y2K-ready prior to year-end 1999.

The U.S. Department of Commerce, in December of 2003, released a new report, "Digital Economy 2003", in which it estimated that total corporate IT spending, accelerated significantly in 2003, up 6.4%, compared with growth of 1.6% in 2002 and 0.9% in 2001 and expected current healthy trends to continue in 2004. Included in its estimates, the report mentioned that hardware output, during the year, increased 26% over the 2002 totals.

Consumer demand for PCs, which had been the mainstay of computer sales during the downturn in corporate IT spending in 2001-2002, remains healthy, lured by declining prices for faster, better equipped systems. Demand for Internet ready systems, which included faster CD players, CD burners, and DVD players, as well as higher capacity memory storage to handle large multimedia files, and digital photography capabilities, continued to swell, reinforced by the continuing evolution of consumer's computer systems from productivity tools to full fledged multimedia resources. Demand for flat panel displays has also surged, as prices have declined to affordable price points. As the all-in cost of systems with these features breached price points at or below the $1,000 range, affordability increased for larger segments of the population. According to a March 2003 article in the NY Times, the average price of a new PC had fallen to $835 in 2002. Household penetration had reached 60% in the United States by 2002 and was climbing.

In an updated forecast, released in September, IDC projected continued growth during 2004, expecting unit sales growth of 10%, with desk top models sales increasing 5.9% and notebook unit sales growing 19.9%.

Laptop PC sales constitute increasing percentages of overall purchases, accounting for 25% of worldwide PC sales in 2003 (according to IDC) and expected to be 27% of the total in 2004, increasing to 35% by 2007. Rapidly falling prices of laptop systems (some currently available at sub $1,000 prices), lower power consumption (increasing battery life), and the recent introduction of computers incorporating Intel's "Centrino" processors (which allow wireless access to the Internet), have contributed to the growing popularity of portables. With the rapid spread of Wi-Fi "hotspots" (locales where wireless connection to the Internet can be availed), interest in wireless computers has continued to accelerate. Networks of these "hotspots", facilitated by installation of a receiver/transmitter (typically with a 300 foot transmission radius), are being installed at retail sites, hotels and airports nationally. Verizon Inc. in 2004 announced plans to build a network of 20 thousand "hotspots" across its telephone network, hoping to profit from selling its Wi-Fi services as well as protect its customer base against competitive inroads by linking other products to its basic telephone services.

Sources:

- Bloomberg
- "Computerworld"
- "A Chronology of Computer History", www.Cyberstreet.com
- "A Brief History of Computing", Steven White: www.ox.compsoc.net
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Insurance Industry Exposure to General Motors and Ford

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With Moody's downgrade of General Motors Corporation on August 24, the four main Nationally Recognized Ratings Organizations (NRSROs) all agree that the Detroit auto manufacturer's ability to repay its debt is now speculative grade. The general consensus has it that high healthcare costs and other liabilities are too large to justify an investment grade rating in light of continuing operating losses. U.S. insurers owned $2.8 billion of GM's bonds at the end of 2004 (Table 1).

Concurrently, Moody's downgraded financing arm General Motors Acceptance Corporation's (GMAC) ratings to junk. However, much insurer exposure to GMAC bonds is not directly linked to its credit profile and maintains an investment grade rating. Financial guarantees on some bonds, for example, make them AAA even as the perceived probability of default is rising at GMAC.

As with GM and GMAC, the ratings agencies all view the credit outlook for Ford Motor Company and its finance subsidiary Ford Motor Credit Company as negative. Moody's also downgraded Ford to junk, but as a result of the Filing Exempt rule that the second highest NRSRO rating be used, its designation translates to an NAIC 2FE (both DBRS and Fitch rate it in the BBB range).

At year's end 2004, insurers owned $2.1 billion of bonds issued by Ford (Table 2). Regulators interested in the exposure of insurers domiciled in their state to Ford and/or General Motors should contact the author.

Figure 1. Insurance Industry Exposure To General Motors and Subsidiaries As of 12/31/04 ($000's)

	LIFE			PROPERTY/ CASUALTY			
Subsidiary	*Bonds*	*Preferred*	*Common*	*Bonds*	*Preferred*	*Common*	*Total*
GM	2,210,082	117,388	18,312	583,329	128,140	49,129	**3,106,380**
GM Nova Scotia	180,609	—	—	61,632	—	—	**242,241**
GMAC	12,467,415	5,276	—	2,823,793	7,581	19,026	**15,323,091**
GMAC Canada	14,920	—	—	41,274	—	—	**56,194**
TOTAL	**14,873,027**	**122,664**	**18,312**	**3,510,028**	**135,722**	**68,155**	**18,727,908**

Figure 2. Insurance Industry Exposure To Ford and Subsidiaries As of 12/31/04 ($000's)

	LIFE			PROPERTY/ CASUALTY			
Subsidiary	*Bonds*	*Preferred*	*Common*	*Bonds*	*Preferred*	*Common*	*Total*
Ford	1,867,512	5,373	25,056	197,349	3,514	47,349	**2,146,153**
FCE Bank	3.301	—	—	18,950	—	—	**22,252**
Ford Capital	107,159	61,473	—	24,028	62,346	—	**255,006**
Ford Credit	4,178,134	603	—	1,783,150	2,785	—	**5,964,672**
Ford Credit Canada	27,678	—	—	21,084	—	—	**48,762**
Ford Holdings	112,266	—	—	524	—	—	**112,790**
Hertz	746,006	—	—	96,147	—	—	**842,153**
USL Capital	69,008	—	—	3,682	—	—	**72,690**
TOTAL	**7,111,065**	**67,449**	**25,056**	**2,144,914**	**68,644**	**47,349**	**9,464,477**

SVO Analysts Profiles

JULIUS VIZNER
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Years at the SVO: five years
Years of professional experience: over five years

The staff at the SVO is an integral resource for regulators. We are pleased to introduce to you this new section to our Newsletter. Each edition of the SVO Research Quarterly will include profiles of SVO Analysts. This will present you with a peek into their backgrounds and experience. Contact them if you have any questions on the industries and companies that they cover. We hope you enjoy this new section. Please let us know your comments.

Chris Evangel

Julius Vizner started at the SVO in 2000 as an Associate Research Analyst. He was promoted to Senior Associate Research Analyst two years later and was recently promoted again to Research Analyst I. Julius has extensive knowledge in SAS and Bloomberg and brings a wealth of knowledge to the Research team.

RQ: What university/universities did you attend?
JV: I received a B.A. in Economics from Boston University in 1999 and a Master's in Economics from New York University in 2004.

RQ: Where were you before joining the SVO?
JV: The Seligman Family of Funds, where I worked for a transfer agency. I wrote letters to shareholders every day.

RQ: Do you have any professional designations?
JV: I am certified in Bloomberg in the Equity track and in SAS Base Programming. I am about to take the SAS Advanced Programmer exam. I advise anyone with a passing interest in Bloomberg to take their certification courses. SAS is a tool I use to query our database to find out, for instance, how many private placements insurance companies own.

RQ: What do you like about being an Analyst at the SVO?
JV: I get the freedom to choose my analytical subject. If something interests me and it is pertinent to insurance regulation, I get to satisfy my intellectual curiosity and inform the regulatory community.

RQ: What projects are you currently working on?
JV: I recently finished a project on private placements and un-rated securities owned by insurance companies. A regulator from Texas wanted to know the amount of investing insurers did in this market. As a related project I am also learning more about the market and am developing default rates for this sector.

RQ: Do you have any interaction with Regulators?
JV: Regulators often call me to retrieve data relating to the assets owned by their domiciliary companies. Some requests are quite easy to take care of (e.g. "How much of CUSIP XXX is owned by companies in my state?") and others require the cooperation of other members of our team or some more time to process. Either way, I find using my skills to answer their questions satisfying and look forward to receiving more inquiries in the future.

RQ: Do you speak any foreign languages?
JV: I speak Serbo-Croatian fluently. I am the first to be born in America in my family, their having emigrated from the former Yugoslavia. So, that was my first language and my only language until I started school. I thought I spoke Italian, having taken it throughout my academic career, but was disabused of that notion when I tried to make my way through Venice one summer. Playing the dumb American tourist was just so much easier.

RQ: Do you do any volunteer work?
JV: I volunteer bi-monthly at a local hospital in their clinic for the underprivileged population of New York City. I also have volunteered here and there with the NYU alumni group. In the winter we practiced English conversation with a group of Chinese immigrants.

SVO Analysts Profiles (Continued)

JOHN YAZZO
SVO Analyst III
Credit & Regulatory Unit
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Years at the SVO: 18 years
Years of professional experience: over 20 years

John Yazzo joined the SVO in 1987 as a credit Analyst. He covers the following industries: food and kindred products, building construction, furniture and fixtures, agriculture, tobacco products, textile mill products, apparel and other finished products, and leather and leather products.

RQ: Where did you go to college?
JY: I attended St. Francis College in Brooklyn, New York where I received a BA in Business Administration.

RQ: Where were you before joining the SVO?
JY: Before coming to the NAIC I worked for four years at Moody's Investor Services in their corporate bond department looking at consumer trends within the consumer product industries.

RQ: What do you like about being an Analyst at the SVO?
JY: I never get bored, since I cover a number of different industries, I am constantly learning — I keep up with what is going on in the various industries.

RQ: What industry do you follow? Do you have a special interest in any of the industries you follow?
JY: My main focus is the food and beverage industries, I also look at the construction, furniture, and agricultural industries. Since I like to eat and cook the food business was a natural. In a previous life I did some construction work, so when they were assigning industries way back when, management decided that it would be a good fit.

RQ: What value do you believe the regulators receive from your efforts?
JY: The analysts at the SVO provide in-depth risk assessments for the non-rated transactions of insurance companies' investment portfolios. Because of our due diligence, regulators can rely on our designations to make sound judgments regarding the overall quality of insurance companies' investment portfolios.

RQ: Describe one of your more interesting designations.
JY: I think that Parmalat was one of the most interesting credits that I have had because of the accounting fraud that was involved with its demise.

RQ: Do you have any hobbies?
JY: In my spare time I enjoy playing golf and basketball. In addition, I recently began teaching my kids and some of their friends the fine art of stickball. I also like to refurbish antique furniture and make my own wine.

SVO Analysts Profiles (Continued)

KAREN STEFANCIC
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Years at the SVO: three years
Years of professional experience: over 20 years

Karen Stefanic joined the SVO in 2002 as a Credit Analyst. She has extensive expertise in the media and communications industry. She focuses on companies in the publishing, cable, broadcasting, motion picture, and telecommunications industry.

RQ: What university/universities did you attend?
KS: I did my undergraduate at Wellesley College in 1980 where I majored in History. I received my MBA at Dartmouth College in 1986.

RQ: So you majored in History then decided to get your MBA?
KS: I enjoy history so I decided to major in it. After working in business for a few years I decided to pursue my MBA.

RQ: Do you have any professional designations?
KS: Yes, I am a Certified Financial Analyst (CFA).

RQ: Where were you before joining the SVO?
KS: I worked at the Royal Bank of Scotland where I was a Senior Vice President in the Media & Communications group. Prior to that I worked at several foreign banks.

RQ: What industry do you follow at the SVO?
KS: Media & Communications (including cable, radio & television broadcasting, publishing, entertainment and wireline & wireless telecommunications). I was hired as an Associate by Citibank's Media group when I was in the MBA program in 1986.

RQ: What do you do in your spare time?
KS: I like to read and garden. I also volunteer for Wellesley College and at the Greenwich Connecticut Library (my local library).

SVO Statistics

Figure 1.
SVO Performance Factors: Unrated ATFs*

	2001	2002	2003	2004	*2005 (7/31/05)*
Initial Filing	3,293	4,521	3,378	3,389	*1,961*
Annual Update	7,025	6,119	6,603	7,312	*3,479*
TOTAL	**10,318**	**10,640**	**9,981**	**10,701**	***5,440***

**ATF denotes Authorization to File.*

Figure 2.
SVO Completion Rate

	Non-NRSRO* Rated ATFs Received	ATFs** completed ≤ 30 days	%	ATFs completed ≥ 90 days	%	ATFs Outstanding	%
Initial	1,739	1,116	*64%*	58	*3%*	300	*17%*
Annual	3,244	2,241	*69%*	47	*1%*	503	*16%*
Overall	4,983	3,357	*67%*	105	*2%*	803	*16%*

**NRSRO denotes Nationally Recognized Statistical Rating Organization.*
*** ATF denotes Authorization to File.*
Data as of July 31, 2005.

Chronological List of *SVO Research Reports*

SVO RESEARCH NEWSLETTERS

Volume 1, Issue 1
- Provisional Exemptions Rules are Live
- Corporate Bond Defaults at Record High
- 1999 Holdings of 5* and 6* Securities as Reported
- Education and Training Programs Available for Insurance Regulators

Volume 1, Issue 2
- Insurer Investment in Problem California Utility Bonds
- Credit Derivatives
- When Prizes and Settlements Become Securities
- SVO Activity

Volume 1, Issue 3
- Preferred Creditor Status of Multilateral Development Banks
- Changes in the VOS Database 1999 –2000
- Debt-Equity Guidelines and the "Classification of Securities" Function of the SVO
- SVO Activity

Volume 1, Issue 4
- Credit-Linked Notes
- Insurer Investment in Foreign Sovereign Securities
- Changes in the VOS Database from Year-End 2000 to Q1 2001.
- SVO Activity

Volume 1, Issue 5
- Insurer Investment in Provisionally Exempt Bonds
- Convertible Bonds in Demand
- Insurer Investment in Catastrophe Bonds in 2000
- SVO Activity

Volume 1, Issue 6
- Corporate Bond Defaults: Mid-Year Update
- Introduction to Equity-Linked Notes
- What's an Industry" The North American Industry Classification System
-

Volume 1, Issue 7
- Argentina, the IMF, and Currency Boards
- Insurer Investment in Foreign Sovereign Securities: Canada
- Changes in the VOS Database: 3rd Quarter 2001
- SVO Activity
- SVO Lost Office on September 11th But Did Not Destroy Operations

Volume 1, Issue 8
- Insurer Asset Exposure to the Enron Default
- Replication (Synthetic Asset) Transactions
- Foreign Sovereign Holdings by U.S. Insurers

Volume 2, Issue 1
- The One-Year Anniversary of Provisional Exemption
- The Telecommunications Equipment Industry: Review & Outlook, January 2002
- Kmart and Global Crossing

Volume 2, Issue 2
- Corporate Bond Defaults: First-Quarter Update
- Insurer Investment in Structured Securities
- Monoclonal Antibodies, Anyone? The Medical Biotechnology Industry

Volume 2, Issue 3
- Chapter 11 for Nations?
- Synthetic Leases
- Insurance Industry Exposure to Tyco International Ltd.

Volume 2, Issue 4
- Portfolio Composition of Insurance Companies
- Not-for-Profit Organizations: A Review
- Insurers Investment in European Sovereign Debt

Volume 3, Issue 1
- Update: Insurer Investment in Catastrophe Bonds
- Semiconductor Industry: Review and Outlook
- Default and Market Data Watch
- Recent Rating Agency Actions for Insurance Companies

Volume 3, Issue 2
- CDO/CBO/CLO 2002 Performance Review
- Credit Tenant Loans
- Global Corner: Brazil Bounces Back as Investor Confidence Returns
- Default and Market Data Watch
- Recent Rating Agency Actions for Insurance Companies

Volume 4, Issue 1
- Life Insurance Securitization
- US Corporate Pensions
- Introduction to Credit Default Swaps
- Home Equity Loan Securitization
- A Primer on Real Estate Investments Trusts (REITs)

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SVO RESEARCH SPECIAL UPDATES

Special Update #1
- NTL, Inc.

Special Update #2
- NTL, Inc., Metromedia International Group Inc., and KirchMedia

Special Update #3
- Adelphia Communications Corporation

Special Update #4
- Insurers' Exposure to WorldCom, Inc.

Special Update #5
- Insurers' Exposure to Qwest Communications International Inc.

Special Update #6
- Update on National Century Bankruptcy

Special Update #7
- Insurers' Exposure to UAL Corporation

Special Update #8
- Insurance Industry Exposure to General Motors and Ford

SVO STATENET (REGULATOR ONLY) RESEARCH NOTES

Research Note 04-01
- 2003 AVR Stress Testing

Research Note 04-02
- 2003 Bond Credit Defaults

Research Note 04-03
- Catastrophe (CAT) Bond Market Developments

SVO RESEARCH SPECIAL REPORTS
- Mortgage Backed Securities
- Introduction to Credit Linked Notes

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