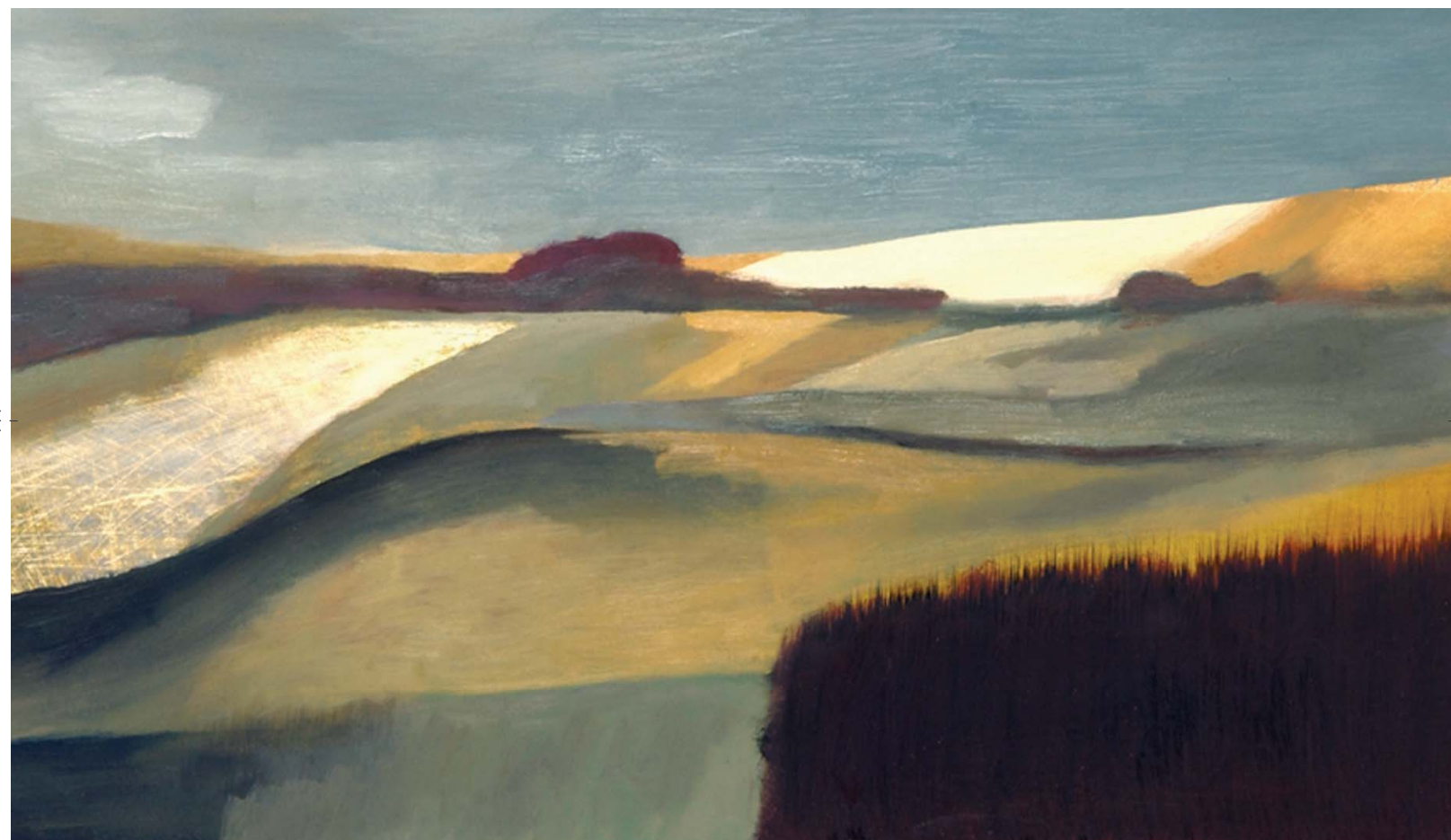


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## Technology rankings 2005

Coping with complexity



# Coping with complexity

The demand for risk-based technology has never been higher due to changing business practices, growing regulatory burdens and burgeoning demand for cross-asset class products. But new entrants can still gain market share in niche areas. By Clive Davidson, with research by Xiao Long Chen



**R**isk's second rankings of technology suppliers shows certain companies holding the dominant positions they established last year, such as Algorithmics in risk management; a jockeying for position among leading suppliers in trading and front- to back-office systems, with Murex edging ahead this year; and a few new entrants muscling their way to the top, such as SuperDerivatives in foreign exchange analytics.

**“Risk is moving from a measurement and compliance function in the middle office to something that creates value in the front office”**

**Michael Zerbs, Algorithmics**

In an increasingly demanding market, with complexity escalating through the growth of structured products and other advanced derivatives, volumes exploding in markets such as credit derivatives, and the regulatory burden becoming ever more onerous with Basel II, FAS 133/IAS 39, Sarbanes-Oxley and the European Union's Markets in Financial Instruments Directive (MiFID), technology

suppliers are under constant pressure to meet the changing and expanding needs of their clients. It is an enormous responsibility, with even the largest institutions now choosing to buy rather than build systems themselves.

Risk's rankings indicate that there is a core group of suppliers with a firm grip on the market, a solid customer base and the ability to evolve their products to meet their clients' needs across a broad range

of activities. These include Algorithmics, Murex, SunGard, Misys and Reuters. Around them are another group of well-established companies that are more specialised in a particular asset class – although some have used that as a springboard into other markets. Imagine and Sophis made their name in equities and interest rates before broadening out into structured products. As its name suggests,

FXpress carved out a niche for itself in foreign exchange before venturing into commodities. And Savvysoft started out as an analytics supplier, but has since branched out into trading systems and application development tools.

This year, Risk introduced two new categories – collateral management and Basel II. The use of collateral has grown significantly in the market, with the accompanying requirement for more sophisticated tools than spreadsheets for its management. Basel II has been one of the drivers for this change, as it makes clear that collateral not only reduces credit risk but can reduce regulatory capital requirements too. These new categories have introduced some new names into the rankings – London-based Lombard Risk Systems in both categories, and Paris-based Fermat in the Basel II category.

Elsewhere, it looks at first sight as if some prominent names have disappeared from the rankings, but, in fact, they appear under other guises. Stockholm-based Front Capital Systems, one of the top-ranked trading and front- to back-office systems suppliers last year, has been owned by US financial software giant SunGard since the



1990s, although the company allowed it to keep its own name and operate at arms length. Over the past year, however, SunGard has drawn Front more closely under its wing. And while the product name Front Arena remains, the subsidiary name of Front Capital Systems has disappeared. Curiously, however, this move has not benefited SunGard/Front in the rankings. Although SunGard often has more than one product in a category (for example, Front and MicroHedge in derivatives trading), the company has done less well this year than last – only one top place in the trading systems categories (credit), compared with first or second in five out of seven categories last year (cross-asset, rates, equities, structured products and credit).

A similar loss of identity has befallen the former Summit Systems, another multi-category winner from last year. Summit has also been absorbed by its owner, in this case London-based Misys. Winner of three trading system categories last year (cross-asset, rates and structured products), it won two this year (rates and structured products), while being placed second in two (cross-asset and credit). It also won three front- to back-office categories (cross-asset, credit and structured products), compared with two last year (cross-asset and structured products).

#### Algo ahead

By contrast, Toronto-based Algorithmics has retained its identity, although New York-based Fitch Risk acquired the company earlier this year. The rankings show that its brand is as strong as ever – Algorithmics once again swept the board in terms of risk management. It came first in all categories except operational risk assessment (where it finished third), key risk indicators (second) and internal loss data (second). With the role of risk management continuing to evolve in the industry – and becoming ever more critical to business operations – software suppliers such as Algorithmics and others, such as Fermat, Misys and SunGard, have to be able to constantly adapt and upgrade their technology in response to institutions' emerging needs.

"Risk is moving from a measurement and compliance function in the middle office to something that creates value in the front office," says Michael Zerbs, president and chief operating officer of Algorithmics. While many institutions have been expressing this as an aspiration for some time, some of the more sophisticated banks are now putting it into practice, he says. "We have clients that are saying 'our derivatives trading volumes are close to doubling year-on-year, with an ever more sophisticated range of fi-



**"Our system is increasingly seen as an enterprise platform, either with all asset classes installed in one shot, or sometimes one asset at a time" Maroun Edde, Murex**

nancial products. How can you help us deal with this, while not letting our capital utilisation grow at the same pace?"

The problem is that as front-office staff originate new products, they create pricing models in spreadsheets, C++ code or specialised pricing applications, which they then use for trading. Meanwhile, the middle-office has to recreate the model and integrate it into the enterprise risk system – a process that can take three to six months. The solution to the escalation of trades, coupled with the lag between origination and risk integration, is partly in a scalable architecture and application, but more specifically in being able to calculate risk in real time, says Zerbs.

The way Algorithmics proposes to tackle the problem is through the use of what it calls Open Mark-to-Future – an open application programming interface (API) to its simulation framework for valuing instruments. At present, Algorithmics' users are able to conduct the intraday valuation of new deals and add them to the total portfolio risk, but only within the company's Algo Suite application. This effectively leaves new instruments originated in the front-office out in the cold until integrated by the middle office in the Algo Suite – a three- to six-month process. The Open Mark-to-Future API will allow the front office to continue innovating using its pricing technology of choice, but to immediately link the new models to the Algo Suite for intraday incremental risk measurement and overnight integration into the full port-

folio simulation valuation process.

In addition to this immediate calculation of incremental risk, leading institutions also want to calculate the economic capital of the deals, says Zerbs. This requires further technological innovation to establish the real-time calculation of potential future exposures – another area where Algorithmics has been developing its technology. This change in the requirements of institutions is symbolised by the fact that the business sponsorship for the purchase of Algorithmics' technology is now coming as much from the front office as from the middle office – a significant change from previous years, where risk management implementations were almost the exclusive territory of the middle office.

The other major driver for the purchase of risk management software continues to be Basel II. Paris-based Fermat, which has developed technology for meeting credit and capital adequacy regulations for over 10 years, made a strong showing in the rankings – third after Algorithmics and SunGard. The company has 23 clients across the globe for its credit risk Basel II application. Jean-Marc Desvaux, marketing director of Fermat, says the challenge for software suppliers in the coming months will be to implement a large number of local interpretations of the Basel II guidelines, which are likely to be published more or less at the same time. Only those suppliers with a flexible architecture will be able to do this without having to undertake time-consuming redevelop-



**“Institutions are getting more standardised in their approach to operational risk and the business processes it entails” Richard Pike, CI3**

ment, says Desvaux.

Basel II also brings operational risk into regulatory capital calculations, but is such a different beast from market and credit risk that it requires wholly different methodologies and technology. Although there are signs that the practice of operational risk management is maturing, the responses to the rankings questionnaire show that it is a very young field, with a wide interpretation of what the term covers. Four suppliers – Algorithmics, Dublin-based CI3, JP Morgan (with its Horizon product) and North Carolina-based SAS – share the honours in the operational risk categories. There was scattered voting for some of the other specialist systems, such as those from Misys and Methodware, based in Wellington, New Zealand, but many respondents voted for trading systems suppliers or database management systems. While trading systems suppliers can help reduce some operational risks by automating trade processing, and database management systems can be used for internal loss data, assessment and key risk indicator applications, the rankings aim to identify and score dedicated operational risk systems.

Another problem is trying to identify operational risk application users. With trading or risk management systems, the users are easy to find – they are on the trading floors or in the middle office. Although more organisations have operational risk managers, other users of the applications tend to be spread throughout the organisation –

in the back office, business units and auditing. Nevertheless, consensus is emerging in the industry as to what operational risk covers and how it should be tackled.

“Institutions are getting more standardised in their approach to operational risk and the business processes it entails,” says Richard Pike, product manager for the Sword operational risk management system at CI3. “They are beginning to know what they want in terms of tools, and are looking for tools that have a track record.”

But there is still some way to go until there is agreement on best practice – within institutions, as well as across the industry as a whole. This has proved a challenge for the application suppliers, which have had to amend their systems to allow organisations to take a number of different approaches across business units, while using the same standardised tools and data aggregation facilities.

“Larger institutions have had real problems with different locations within their organisations not being able to agree on the way to do things,” says Pike. One bank has 800 users of Sword in 22 countries. “We have had to make our tools not only multi-lingual and multi-currency, but also able to implement different approaches for different parts of the company, while aggregating to a central database,” he says. In addition, CI3 has had to upgrade the security and control features of its application to enable institutions to specify exactly who is able to see what within the system, especially where a large financial services company might have investment banking, retail banking and fund management arms all accessing the system.

#### More challenges

In the trading systems and front- to back-office areas, the challenges only get bigger. Not only are the trade volumes unprecedented and way beyond those of only five years ago, but institutions want to bring more of their business under a single architecture, with a single technology supplier. This often includes two quite different types of activity – high volume standardised products and low volume complex products. To become a core technology supplier in the industry today, a software company must offer a system that can handle these different demands with equal panache. Then there is the breadth of asset classes that a system must cover, from equities and interest rates, to credit derivatives and commodities, as well as the ability to manage collateral and to re-engineer the back office for straight-through processing.

All the suppliers in the trading and front to back-office systems rankings are companies that have been around for 10

years or more and have a large number of staff – Murex now has more than 500 employees for example – or are part of bigger financial services software suppliers, such as Misys and Reuters. Since it is not possible to build a trading or front- to back-office system overnight, the barriers to new entrants grow ever higher.

“Our system implementations are getting bigger,” says Maroun Edde, managing partner at Murex. “Our system is increasingly seen as an enterprise platform, either with all asset classes installed in one shot, or sometimes one asset at a time,” he adds.

Even among tier-one banks that have traditionally built their own trading, middle- and back-office systems, a review is taking place as to where they should concentrate their skills and resources to create a competitive edge – and this is not necessarily in developing core transaction processing and data management infrastructure. Some of these banks are opting for systems such as Murex as their core infrastructure – a platform where they can choose a number of Murex modules to handle specific asset classes or functions, while building their own for less standardised activities, such as structured credit derivatives. Firms can then plug these in-house applications into the central platform.

This trend of trading technology suppliers becoming core technology providers for banks can also be seen in risk management. The breadth and depth of what now falls within the risk management area – including market, credit, liquidity and operational risk; Basel II, IAS 39/FAS 133 and Sarbanes-Oxley; asset and liability management; collateral management; and economic capital calculation – requires not only a breadth of functionality, but also an underlying architecture and set of technological capabilities, such as data collection and aggregation and messaging that can provide a framework to support, manage and integrate the various activities.

“Three years ago, we undertook a complete review of our technology and we realised that to be competitive we would have to be ahead of the curve in three main areas – a service-orientated architecture (SOA), database independence and a unified and appealing graphical user interface across all our applications,” says Michel van Leeuwen, chief executive of Misys Risk Management.

SOA is the direction all software development and delivery is moving. Instead of a function such as revaluing an option being locked inside an application, which in turn is located in a specific business unit, the function is made available as a service on the web for use by any

user or application that needs it. The function can be as small as an algorithm or as big and complete as a module for, say, Basel II. There are a number of advantages to this approach, such as the reuse of functions (no need to rewrite code for every function in a new application), the standardisation of functions (a bank can standardise on one options pricing model for front, middle and back office), and the ease of integrating systems (every function or service has a standard interface, making it easier to link applications).

The major risk management suppliers such as Algorithmics and Misys have been re-engineering their applications into SOAs. "Our clients have been saying to us that we are creating something they have been wanting for a long time – an architecture that will allow them to tie together many of their systems, not just for risk management systems, but in many parts of their operations," says van Leeuwen.

#### Cost

One of the commonly accepted statistics for risk management systems is that the cost of implementation is usually 10 times that of the software because of the data consolidation and interface development for trading, back-office, data and other systems. An SOA approach, where the risk management system supplier provides the SOA platform, goes a long way to solving this problem because the SOA handles the interface and data exchange issues. Furthermore, a bank can use the platform beyond risk management for the integration of systems in the back-office and elsewhere.

Offering a standards-based SOA platform is a double-edged sword for risk management system suppliers, however. Although, on the one hand, a bank is likely to look first at the application modules for market, credit and operational risks offered by the platform supplier, on the other hand, because the platform is open to connecting to other third-party applications, the bank could equally choose competitors' applications. "So we also have to offer best-of-breed software in each of the application modules," says van Leeuwen.

The ability to offer an extensive SOA platform was largely behind Misys' acqui-

sition of London-based Almonde earlier this year. Almonde built its platform as the basis for an asset and liability/profitability management application, using SOA-type concepts. Although Almonde had also developed funds transfer pricing and other applications, it is its underlying platform that is of greatest value, says Frank Weyns, managing director of Misys Almonde.

"The functional modules for things like Basel II and economic capital are not so challenging to develop now – the finance is well understood, so it is the design of the platform that is critical," says Weyns.

Even in the analytics arena, derivatives application specialists are beginning to offer generic technology. New York-based Savvysoft (top in the rankings for cross-asset, credit, rates and structured products analytics) recently introduced TurboExcel, which converts Excel spreadsheets into C++ programmes. Although initially developed as a tool to help non-programming front- and middle-office staff to automatically create pricing models from payoff functions expressed in a spreadsheet, the product has wide applications – anyone who needs a programme or dynamic linked library (a collection of small programmes that can be called to perform a function by a larger programme) can create one by expressing their requirements in spreadsheet form and turning on TurboExcel to generate the code.

Savvysoft now uses TurboExcel as a development tool for its own software, making it 10 times more productive, claims Rich Tanenbaum, president of the company. It also sells it in conjunction with its Stars portfolio management system and OmniPricer generic pricing application. "Savvysoft has always been about giving people outside the big financial houses tools to do the same things that the big houses do," says Tanenbaum. "Initially, it was our pricing models, but this is the same thing, only more generic."

#### Impact

Analytics is one of the few areas in derivatives trading and risk management technology where it is still possible for a new entrant to make an impact in a relatively short period of time. London-

based SuperDerivatives, winner of the foreign exchange analytics category (fifth last year) and second in the commodities analytics category (unplaced last year), established its foreign exchange options pricing product SD-FX as something of a *de facto* standard globally in the space of five years.

"Our strengths are the accuracy of our pricing, the wide variety of classes of options and currencies we support, and the flexibility and ease of use of the product," says David Gershon, president and chief executive at SuperDerivatives. The widespread use of the product – the company has customers as far afield as Chad and Mongolia – has stimulated foreign exchange options markets in the Turkish lira, Taiwan dollar and several eastern European currencies, claims Gershon. SuperDerivatives has now extended its coverage to commodities, where it is already making an impact, as well as interest rates and equities, and has a risk management system, SD-RM.

An increasingly popular risk mitigation tool is collateral, and a new category in this year's rankings shows that institutions are increasingly looking to third-party software products to replace their in-house, typically spreadsheet-based, systems for managing collateral. Even small institutions such as hedge funds can have 20–50 collateral agreements these days, while big banks might have thousands, so trying to manage the agreements on spreadsheets becomes too unwieldy, says Cliff von Tonder, chief operating officer at Lombard.

Collateral is often set against complex deals that need to be re-valued on a daily basis for margin calls. A number of people in the front, middle and back office might need to access information on the collateral. It is difficult to handle these and other requirements on spreadsheets. But while the big banks are able to justify the expense of a dedicated collateral management system because of the number of agreements they have, smaller institutions have found this more difficult. Lombard is attempting to solve this conundrum by offering an application services provision (ASP) version of its collateral management system called Colline, whereby institutions can rent use of the software online starting from just \$200 a month (*Risk October 2005*, page 30).

While the suppliers and their users will no doubt argue about the relative merits of their products and their positions in *Risk's* rankings, an examination of the winners clearly shows the direction that derivatives trading and risk management technology is moving in to meet the insatiable demands of a dynamic and vigorous industry. □

#### How the survey was conducted

*Risk* surveyed technology users globally in October and November for its second annual Technology rankings and received 448 valid responses. Respondents were asked to nominate the firms that provide the best product offerings across different markets such as market risk, credit risk, trading systems, analytics and front- to back-office systems based on the functionality, usability, performance, return on investment and reliability provided by technology vendors. Nominated technology companies were awarded three points for the first choice vote, two for the second choice vote and one point for a third place vote. Only technology end-users were allowed to vote. *Risk* verifies the validity of votes and discounts invalid votes.



## Technology rankings 2005

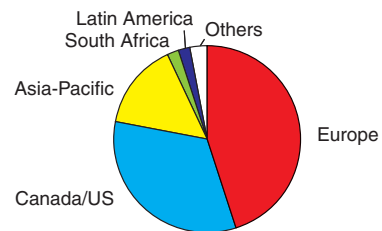
### Overall results

#### Top technology vendors

Rank	Vendor	1st places	2nd places	3rd places
1	Murex	8	12	3
2	Algorithmics	6	2	1
3	Misys	5	3	2
4	<b>Savvysoft</b>	<b>4</b>	<b>2</b>	<b>2</b>
5	CI3	3		
6	Imagine	2	1	1
7	Reuters	1	2	1
8	SunGard	1	1	6
9	SuperDerivatives	1	1	
10	FXpress		1	1
11	SAS		2	2
12=	Bloomberg		1	2
12=	Sophis		1	2
14=	Fermat		1	
14=	OpenLink		1	
16	Calypso			4
17=	JP Morgan Horizon			1
17=	Moody's KMW			1
17=	Wall Street Systems			1
		<b>31</b>	<b>31</b>	<b>30</b>

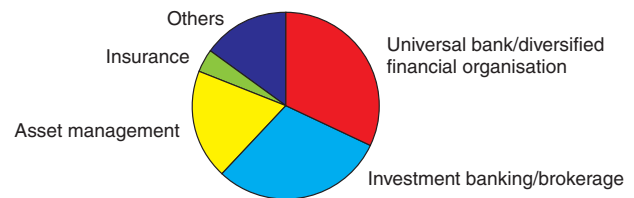
#### Survey respondents by location

Europe	45%
Canada/US	33%
Asia/Pacific	15%
South Africa	2%
Latin America	2%
Others	3%



#### Survey respondents by type of institution

Universal bank/diversified financial organisation	32%
Investment banking/brokerage	30%
Asset management	19%
Insurance	4%
Others	15%





## Market risk

Number of companies cited: 38

2005	2004	Company	%
1	1	Algorithmics	16.0
<b>2</b>	<b>3</b>	<b>Savvysoft</b>	<b>12.8</b>
3		Murex	11.1
4		Risk Data	8.3
5	8	Imagine	7.4
6	2	Misys	5.3
7	5	SunGard	4.9
8	10	Reuters	4.7
9	4	RiskMetrics	4.4
10		Bloomberg	3.3

## Credit risk

### Trading and banking

Number of companies cited: 30

2005	2004	Company	%
1	1	Algorithmics	21.7
<b>2</b>		<b>Savvysoft</b>	<b>9.8</b>
3	2	Moody's KMV	9.1
4		Reuters	7.5
5	3	SunGard	6.7

### Limit checking

Number of companies cited: 20

2005	2004	Company	%
1	1	Algorithmics	19.8
2	3	Murex	15.3
3	2	SunGard	12.4
4	4	Reuters	10.4
5	5	Misys	6.2

## Operational risk

### Assessment

Number of companies cited: 19

2005	2004	Company	%
1	2	CI3	25.0
2	3	SAS	18.5
3	4	Algorithmics	13.6
4	1	JP Morgan Horizon	10.8

### Key risk indicators

Number of companies cited: 22

2005	2004	Company	%
1	1	CI3	18.5
2	2	Algorithmics	13.8
3		SAS	11.0
4	3	JP Morgan Horizon	9.6

### Internal loss data

Number of companies cited: 26

2005	2004	Company	%
1	1	CI3	14.3
2	3	Algorithmics	8.7
3	2	SAS	8.5
4	4	JP Morgan Horizon	7.5

### Capital calculation

Number of companies cited: 20

2005	2004	Company	%
1	1	Algorithmics	18.6
2	3	SAS	17.1
3		JP Morgan Horizon	8.6
4		CI3	6.5





## Technology rankings 2005

### Trading systems

#### Cross-asset

Number of companies cited: 23

2005	2004	Company	%
1	3	Murex	13.8
2	1	Misys	13.5
3	2	SunGard	11.4
4		Imagine	8.9
5	5	Reuters	6.8

#### Credit

Number of companies cited: 22

2005	2004	Company	%
1	1	SunGard	15.8
2	2=	Misys	12.6
3	2=	Murex	12.0
4	4	Calypso	8.5
5		Reuters	6.0

#### Rates

Number of companies cited: 19

2005	2004	Company	%
1	1	Misys	15.3
2	4	Reuters	14.8
3		Bloomberg	13.1
4		Murex	9.7
5	2	SunGard	8.1

#### Foreign exchange

Number of companies cited: 20

2005	2004	Company	%
1=	2	Murex	12.1
1=	3	Reuters	12.1
3	1	Wall Street Systems	8.3
4	4=	SunGard	7.0
5		FXpress	6.6

#### Equity

Number of companies cited: 20

2005	2004	Company	%
1	2	Imagine	18.3
2	4	Murex	14.6
3	1	SunGard	12.2
4=		Reuters	9.8
4=	3	Sophis	9.8

#### Commodities

Number of companies cited: 26

2005	2004	Company	%
1	1	Murex	19.1
2=	2	OpenLink	11.0
2=		Reuters	11.0
2=	3	SunGard	11.0
5		FXpress	6.3

#### Structured products

Number of companies cited: 25

2005	2004	Company	%
1	1	Misys	18.5
2	3	Murex	13.6
3		Reuters	10.5
4		Sophis	8.2
5	2	SunGard	7.0

### Trading analytics

#### Cross-asset

Number of companies cited: 21

2005	2004	Company	%
<b>1</b>		<b>Savvysoft</b>	<b>15.3</b>
2		Murex	10.8
3	3	Imagine	9.6
4	2	Misys	6.9
5	1	SunGard	6.5

#### Credit

Number of companies cited: 16

2005	2004	Company	%
<b>1</b>	<b>4</b>	<b>Savvysoft</b>	<b>19.8</b>
2		Murex	15.3
3		Bloomberg	12.6
4		Misys	9.9
5	1	SunGard	8.1



# Technology rankings 2005



## Rates

Number of companies cited: 18

2005	2004	Company	%
<b>1</b>	<b>1</b>	<b>Savvysoft</b>	<b>18.8</b>
2	3	Murex	16.2
3		Misys	11.7
4	4 =	Bloomberg	11.0
5		Numerix	7.1

## Foreign exchange

Number of companies cited: 15

2005	2004	Company	%
1		SuperDerivatives	19.0
2		Murex	12.3
<b>3</b>	<b>2</b>	<b>Savvysoft</b>	<b>9.0</b>
4		FXpress	8.5
5	4	Fenics	8.1

## Equity

Number of companies cited: 14

2005	2004	Company	%
1	1	Imagine	24.0
2		Bloomberg	13.6
3=		Murex	11.2
3=	3=	Sophis	11.2
<b>5</b>		<b>Savvysoft</b>	<b>10.4</b>

## Commodities

Number of companies cited: 13

2005	2004	Company	%
1	3	Murex	20.9
2		SuperDerivatives	13.4
<b>3</b>		<b>Savvysoft</b>	<b>10.4</b>
4=	1	FEA	9.0
4=		FXpress	9.0

## Structured products

Number of companies cited: 18

2005	2004	Company	%
<b>1</b>	<b>1</b>	<b>Savvysoft</b>	<b>20.6</b>
2	4	Murex	12.6
3		Misys	10.8
4	2	Imagine	8.1
5		FEA	6.8

## Front- to back-office

### Cross-asset

Number of companies cited: 17

2005	2004	Company	%
1	1	Misys	20.5
2	2	Murex	19.7
3		Calypso	16.4
4		Wall Street Systems	5.7
5	3	Imagine	4.9

### Credit

Number of companies cited: 13

2005	2004	Company	%
1	5	Misys	28.2
2	4	Murex	20.6
3=	1	Calypso	12.0
3=	2	SunGard	12.0
5		Sophis	5.3

## Rates

Number of companies cited: 14

2005	2004	Company	%
1	1	Murex	20.6
2	2	Misys	18.9
3	3	SunGard	12.6
4	5	Imagine	11.5
5		Reuters	10.2

## Foreign exchange

Number of companies cited: 15

2005	2004	Company	%
1	2	Murex	15.6
2		FXpress	13.8
3		Calypso	10.3
4	1	Wall Street Systems	8.8
5	3	Reuters	8.0



## Technology rankings 2005

### Equity

Number of companies cited: 9

2005	2004	Company	%
1		Murex	28.9
2	3	Imagine	26.5
3	1	Sophis	17.6
4	2	Reuters	8.2
5	5	SunGard	5.5

### Commodities

Number of companies cited: 11

2005	2004	Company	%
1	1	Murex	28.3
2		Sophis	17.0
3		FXpress	11.3
4=	3	Allegro	9.4
4=	2	OpenLink	9.4

### Structured products

Number of companies cited: 14

2005	2004	Company	%
1	1	Misys	19.7
2	2=	Murex	17.9
3		Calypso	12.0
4		Sophis	7.7
5		OpenLink	6.3

### Other

#### Collateral management

Number of companies cited: 14

2005	2004	Company	%
1	na	Algorithmics	27.5
2		Murex	12.8
3		SunGard	9.6
4		Misys	7.4
5		Lombard Risk	6.4

#### Basel II

Number of companies cited: 15

2005	2004	Company	%
1	na	Algorithmics	25.9
2=		Fermat	10.6
2=		SunGard	10.6
4		Misys	7.1
5		Lombard Risk	6.8

**Voted** **#1**  
**Credit**  
**Cross Asset**  
**Interest Rates**  
**Structured Products**

## Thank you for putting us in our place. Again.

Last year, Risk Magazine's readers ranked Savvysoft the top derivatives analytics vendor. This year, Savvysoft has done even better. How? By extending our leadership. Savvysoft's TOPS software has been honored with four #1 rankings. We're #1 in Credit, #1 in Cross-Asset, #1 in Interest Rates and #1 in Structured Products. In fact, we're ranked in the Top 5 in nearly every category, extending our already significant lead over the competition. And now we've earned top rankings in portfolio management as well.

Small wonder Savvysoft's STARS system is now being chosen by leading hedge funds, banks, and portfolio managers, earning us #2 rankings in Market Risk and Trading Systems against all the well-established players. This comes on the heels of blowing away the competition in Euromoney's 2005 survey, where Savvysoft came in #1 in five categories, including Portfolio Management: Overall.

How do we do it, year after year? For one thing, we're not just software people. Our president is a leading pioneer of the OTC derivatives business. So we have the know-how, we speak your language, and our solutions reflect this unrivaled depth of understanding. And our support people don't just "know" the software, they create it. Which means you get people who can really help you, and fast.

Savvysoft products include TOPS for analytics, risk management and more. STARS for enterprise-level portfolio management. OmniPricer, for pricing every conceivable type of complex derivative by merely using a spreadsheet. And TurboExcel for turning spreadsheets into C++, allowing you to not only develop C++ code ten times faster with no debugging, but also secure, port, and speed up your spreadsheets. For a trial of the #1 ranked derivatives software or TurboExcel, please call us at 1-212-742-8677, send email to [info@savvysoft.com](mailto:info@savvysoft.com) or visit [savvysoft.com](http://savvysoft.com).

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ANALYTICS > RISK MANAGEMENT & TRADING SYSTEMS > CREDIT DATA

