

The Intertek Group

TRENDS IN
QUANTITATIVE METHODS IN ASSET MANAGEMENT
2003 UPDATE

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TRENDS IN QUANTITATIVE METHODS IN ASSET MANAGEMENT 2003 UPDATE

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The Intertek Group undertook research to determine trends in the use of quantitative methods in asset management. This study follows on the 2000/2001 study on the same subject and measures changes that have occurred over the last two years. Forty-four interviews were conducted with managers at asset management firms in the Benelux, Switzerland and Scandinavia (7), France (5), Germany (7), Italy (5), the UK (7) and the USA (13). At least 50% of the participants are among the biggest firms in their home markets.

Key findings among the sources:

- ❑ The role of quantitative methods in the investment decision-making process has increased over the past two years at almost 3/4ths of the firms interviewed while it has remained stable at about 15% of the firms; 5 reported that their process was already essentially quantitative.
- ❑ Over one half of the participants evaluate that models performed better in 2002 than two years ago; some 20% evaluated 2002 model performance to be stable with respect to two years ago while another 20% consider that performance worsened.
- ❑ Just under 60% of the participants indicated that they had made significant changes to their modeling approach over the last two years; for many others, it is a question of continuously adapting models to the environment.
- ❑ Much of the recent attention on quantitative methods has been focused on risk management; more than 80% of the firms reported a significant evolution of the role of risk management over the past two years.
- ❑ More than 60% of the firms reported having formalized procedures for integrating quantitative and qualitative input, though half mentioned that the process has not gone very far. 30% reported no formalization.
- ❑ Virtually all firms reported a partial automation in the handling of qualitative information; some 30% mentioned adding functionality over and above that provided by the suppliers of analyst research, consensus data and news. About 1/4th will be further automating the handling of information in 2003.
- ❑ Almost 70% of the firms reported an increase (from modest to significant) in their modeling efforts for 2002 relative to the preceding two years; 50% expect to continue to see an increase in 2003 over 2002 while 45% expect 2003 spending to remain at 2002 levels and 5% expect a decrease.
- ❑ More than 20% consider their fund managers are already very quant-oriented; 40% remarked that they have become more quant-oriented over the last two years while 20% saw no change in profile; one reported that fund managers were less quant-oriented than two years ago.

1. EVOLVING ROLE OF MODELS IN THE DECISION-MAKING PROCESS

Over the past two years, the role of quantitative methods in the investment decision-making process has increased at almost 3/4ths of the firms interviewed; roughly 15% reported that the role of models was stable. The remaining remarked that their process is essentially quantitative. The latter includes firms that were born as quant firms as well as firms more recently gone quant. The head of quantitative analysis for equities at the German subsidiary of an international firm said, "Over the past two years, we have gone purely quant for equities. When we reviewed the results of our process one and a half years ago, we found that the forecasting power of our models was accessible and controllable and that the contribution of fundamental analysis was nil."

3/4ths of the firms report that the role of quant methods in the decision-making process has increased.

A number of firms, especially in continental Europe, remarked that the role of models has increased as measured by the growing percentage of assets now being managed by quantitatively run funds. Commenting on the trend, a source at a large German firm remarked, "The quantitative process has produced more positive, more stable results over the past four years."

A growing percentage of assets are now being managed by quant-run funds.

Over the past two years, large European firms have been steadily catching up with their US counterparts; even smaller firms are now adopting quantitative models. The managing director at a mid-sided German firm remarked, "Over the last two years, fundamental analysis has not been helpful. We need to get the process on a more solid basis so we are using more quantitative methods - albeit simple quant methods - in both return forecasting and risk management." Falling costs and user friendliness are helping the take-up of models. A business manager at a Scandinavian firm said, "We haven't done too much modeling until now but we are beginning to use more models as they become cheaper and more user friendly."

European firms are catching up with their US counterparts.

Demand pull and management push were among the reasons cited for the growing role of models. The head of risk management and product control at an international firm said, "There is genuinely a portfolio manager demand pull plus a top-down management push for a more robust process." Many reported that fund managers are now more eager consumers of modeling. "It is a question of growing professionalism, of perceived increased insights obtained from the models," the head of quantitative research at a large northern European firm commented.

Demand pull and management push are behind the growing role of models.

As for management push, the head of equity research at a large French group remarked, "We are beginning to introduce quant methods. Previously, the process was entirely active and fundamental, but top management now wants to arrive at a more systematic method of asset management." Qualitative processes are increasingly subject to quantitative evaluation. The head of quantitative research at a major

European firm said, "The role of models has increased as even qualitative processes now must demonstrate proof of principle. Quantitative methods are being used to measure and back test the investment process."

Modeling is being extended over an ever greater universe of assets under management. In addition to bringing greater structure and discipline to the process, models help contain costs. "If you want to expand your product range, models have a cost advantage," a business manager at a US firm remarked.

Modeling is being extended to cover a greater universe of assets.

The markets were also cited as a factor driving the increased use of models. An executive at a US firm commented, "The role of models is always going up: the markets we are operating in are more and more complex and going global. We are lucky because, being a big player, the amount of data we have - both pricing data and risk data - has grown considerably." Another source at a US firm cited today's difficult markets, saying, "The role of models in our decision-making process is up significantly due to the high volatility and greater risk in the market."

Today's difficult markets are one factor behind the increased use of models.

Today's difficult markets are also behind the decision at some firms to reduce the use of quantitative methods in some areas. The CIO at a major international firm remarked, "While low-risk portfolios are managed more or less wholly by quantitative methods, the use of quant methods in high-risk portfolios will decrease. We have fewer positions to take and will be expanding risk taken in these portfolios, increasing the qualitative factor." An executive at another firm said, "The role of models has increased in areas such as credit but has decreased in some areas such as global bonds where we think we can get a higher risk-adjusted return without models."

Today's difficult markets are also behind a reduced role for models in some areas.

Client demand for risk control is another factor driving modeling. "In response to customer demand, we are now using VaR to implement tracking error limitation ranges on almost one third of our funds," said a source at a large German firm. The CIO at an Italian firm added, "The recent performance of markets and client demand for a product with a controlled risk structure is behind our increased use of modeling."

Client demand for risk control is driving modeling.

The role of modeling in implementing strategies is also increasing. At a large European firm, the head of research at the arbitrage group responsible for implementing portfolio strategies remarked, "All the added value is due essentially to the quant stuff. It's a problem of today's market, not of the traditional asset manager," he added.

Modeling is being used to add value in the implementation phase.

Pressure from consultants and institutional investors continues to work in favor of modeling. "Two years ago we didn't use models, then top management decided to go in this direction: there was a lot of pressure from consultants, clients and prospects in bidding wars," the head of financial engineering at a French asset management firm remarked. Quant methods remain a good marketing tool.

Pressure from consultants and institutional investors continues to work in favor of modeling.

A few firms mentioned having recast the role of models. The head of quantitative methods at a major French firm said, "Before, quant methods were used essentially in stock screening on which the fund managers relied. Now fundamental analysts work on a specialized universe, generating ideas, and the quant methods come in afterwards, in portfolio construction, to measure the pertinence of fundamental analysis, characterize the portfolio style, eventually transform products through derivatives, optimize the portfolio and track risk and performance." Another source at a large European firm remarked, "Fund managers perceived stock selection models as a competitor in picking stocks, taking away their freedom. We are now concentrating on risk management: managers see the need for risk control and models are perceived as more co-operative in portfolio construction."

Some firms have recast models as a support function to portfolio managers.

2. EVOLUTION IN THE PERFORMANCE OF MODELS

Over one half of the participants evaluate that models performed better in 2002 than two years ago; some 20% evaluated 2002 model performance to be stable with respect to two years ago while another 20% consider that performance worsened.

More than 1/2 consider model performance has improved since 2000; 1/5th consider it has worsened.

An overall evaluation that is quite widely shared is that, independent of the models themselves, the use of models has improved. "We now have a better understanding of what the model is and what its limits are. It's a question of moving up the learning curve," commented a source at a large international firm.

Among those noting poor model performance, the director of quantitative research at a large European group remarked, "For both the qualitative and quantitative approach, it is easier to perform well in bull markets than bear markets."

A first differentiation is the asset class; a second differentiation is the type of model. The CIO at a major international firm remarked, "In stock selection, value-based models have been performing better as in the post-bubble market the accent is back on fundamentals; in fixed income, performance has been more or less as expected; in asset allocation, models are performing less well than previously: here

Model performance is dependent on the asset class and type of model.

everything is absolute while models perform better versus the relative." Looking forward, the head of quantitative analysis at a large Benelux firm believes that "in risk management, models will bring more and more insight; in stock selection we will see some improvement due essentially to better data; in asset allocation, the use of models will remain difficult as markets are difficult to predict."

Models are being challenged by volatility. A source at a large French firm which is using multiple models said, "Our models have been working quite well though high volatility has reduced the pertinence of models over short periods." While short-term trading-like models might seem to offer a solution, most persons we talked to cited the longer time horizons of investment management.

Volatility, structural change and unforecastable events are challenging models.

Another challenge to models comes from structural changes in the market and unforecastable events. The director of research at a major European bank remarked that the problems their models encountered were related to spreads and the appearance of unforeseeable systemic factors, such as Enron. "There has been a change in the nature of the market; there is now a closer relationship between equities and bonds," he added.

On the equities side, risk models are generally considered to have performed quite well while the evaluation relative to return forecasting models is more complex. A business manager at a European firm observed that performance is model-specific. "It is not a question of the poor performance of models in general but of a particular model at a particular point in time," he said.

The trend towards using a battery of models has accelerated relative to The Intertek Group's 2000-2001 study. Value, momentum, sentiment are the three most cited phenomena being modeled in equities. "We tend to think that models don't work forever and don't expect them to. Value is only one of the things we look at," said the head of global equities research at a large international firm. The head of financial engineering at another large firm commented, "What we do is simple. We start by asking ourselves: Does value factor work? Does momentum factor work? If we believe that both value and momentum are important to capture alpha or longer term effects, we model both, but we expect the one or the other to perform poorly from time to time, depending on the state of the markets."

The trend towards using a battery of models has accelerated.

Most firms using return forecast models with a value-tilt reported that performance has improved since the year 2000. "Before the bubble burst, there was talk about a new paradigm so history was no longer considered a guide to the future, commented a business manager at a US firm. "Since the bubble burst, people have been trying to

Return forecast models with a value tilt have been performing better since the bubble

understand the asset classes and the pricing of an asset class so we are now again looking at the past valuation of equities. Quant models are good here."

burst.

Some attributed the better performance of return forecast models to the use of discounted cash flow models. A source at a large European group said, "Our valuation models for equities have been performing even better over the last two years because we are placing more and more emphasis on discounted cash flow models rather than the traditional earnings analysis."

Users of discount cash flow models report good performance.

Attributing the good performance of value-tilted models to today's markets might call for caution. "The reasons for the good performance of these models might be less transparent than they look. Market movements have been so huge they have swamped any information," remarked the head of quantitative modeling for equities at a large American firm.

Caution might be called for in attributing the good performance of value-tilted models to today's markets.

Models based on sentiment as defined by analyst revisions in earnings estimates are also reported to be performing better: "Analysts post-crash are doing a better job," remarked the head of quantitative analysis for equities at a large international firm.

Models based on sentiment are also performing better.

Poor model performance is leading some to exercise more judgement in model selection. A business manager at a European firm remarked, "Models have come under substantial fire. We are now making a more judgmental use of models, switching models more often. Given today's higher volatility, higher uncertainty and the vast amount of exogenous happenings, the choice of models will be a highly judgmental process."

In some cases, more judgement is being used in model selection.

In fixed income, the overall evaluation is that performance, especially in the area of credit risk models, has improved. Some of the merit here was attributed to more and better data and recent enhancements to solutions from suppliers such as Wilshire and Barra. But some big US firms in particular have also been working hard on an in-house solution. One head of fixed-income research at a large US firm remarked that while the performance of models was mixed due to volatility, credit models performed very well on mortgages. "This goes to show you that even when there is a lot of volatility models can perform well. I think we can attribute this good performance to the richness of the underlying data and the maturity of the models. Because the models have been running for almost ten years, people know how to use them and when to ignore the results." An executive at another large US firm attributed the improved performance of their proprietary models to the massive scale valuations they perform. "We are using more data, more computing power, and better, more stream-

Credit risk model performance has improved: we now have more experience with the models, more and better data, more computing power and better algorithms.

lined algorithms," he added.

Europe is considered to be several years behind the US in modeling corporate bonds; this is also related to the relatively slow development of Europe's corporate bond markets. A few firms have developed valuation models and corporate bond scoring systems, but typically hard credit data is the "tool" of choice.

Europe is still behind the US in modeling corporate bonds.

3. CHANGES IN THE MODELING APPROACH

Just under 60% of the participants indicated that they had made significant changes to their modeling approach over the last two years; for many others, it is a question of continuously adapting models to the environment and improving the data. "Models must reflect today's reality," commented an executive at a large US organization. A principal at another firm remarked, "We are always trying to improve the input that goes into our models."

Just under 60% have made significant changes to their modeling approach since 2000.

Many firms reported using multiple approaches and multiple models, a trend already mentioned. The head of quantitative research at a major European firm said, "We have a hybrid approach, using technical indicators such as changes in volatility regimes as well as a fundamental framework." A managing director at a large US firm remarked, "We have evolved from when we did the simple things to diversification in what we are modeling. We now take an eclectic approach. We use relative value, tracking the quality and sustainability of earnings over decades, and sentiment indicators, tracking the behavior of those in the know."

Firms are turning to multiple approaches and multiple models.

Today's volatile markets are causing some firms to adopt short-term models. A director at a large French firm said, "We are now using market-timing models, combining these with long-term fundamental models." The CIO at a large international group said, "We now focus more on regime change, modifying our models in high-volatility regimes."

In response to market volatility, some firms are using short-term models.

The selection and use of indicators is also undergoing change. The head of quantitative analysis at a firm recently gone quant for equity portfolios said, "We have changed the way we implement indicators in portfolio construction. We found that the risk-return ratio for factor bets based on country, industry and style did not perform as well as stock-specific bets, so we have gone neutral on country, industry and style." The head of quantitative modeling for equities at another quant firm that is factor-neutral remarked, "We try to get consistency with models and factors are not consistent: they are so long-running and

The selection of and use of indicators is undergoing change.

change so suddenly that timing changes is very difficult."

The importance of sentiment as an indicator has grown. Sentiment as measured by business or consumer confidence is often the responsibility of the macro economic teams at the mother bank, at least in Europe; asset management firms typically model stock-specific sentiment. A manager at a large German group said, "We are now incorporating fundamental sentiment from our in-house analyst research in a model-driven way, providing a medium-term evaluation on a company." The CIO at a large international group remarked, "We have added new sentiment signals such as: Is a stock trading more than it has been traded historically?"

The importance of sentiment as an indicator is up.

Some firms reported that they will be taking a more critical look at fundamental data. The head of research at an international quant firm that is exploring how to measure the robustness of fundamental statements said, "We will be making changes in the dividend discount model to put more emphasis on the quality of the accounting information, distinguishing between more or less robust accounting."

Some firms are taking a more critical look at fundamental data.

Credit modeling is another area where change is occurring. The head of quantitative methods at a German firm whose mother company is a powerful landesbank said, "We are now using econometric models to model corporate bonds; with the bank's proprietary data going back more than fifteen years, we can now test our models."

Econometric models are being used to model corporate bonds.

4. RISK MANAGEMENT

Much of the attention on quantitative methods has been focused on risk management. The head of research at an international quant-oriented organization said, "There is a growing recognition of the importance of risk management. We have now seen how much the market can move and there are new risks out there such as bad accounts or bad companies." A director at another large quant-oriented firm said, "We have put a big effort into risk management because of the volatile markets."

Much of the attention on quant methods has been focused on risk management.

Of the 44 firms participating in the study, only one had no risk management system in place though this was under review. More than 80% reported a significant evolution in the role of risk management over the past two years. Many mentioned that two years ago there was simply no risk management system; others said that risk management had become very strong. A source at a large American firm commented, "The role of risk management has increased dramatically. There is now more emphasis on discipline in the process;

More than 80% report a significant change in the role of risk management over the last two years.

systematically tracking performance - and not just with one tool."

Though the battle with fund manager is not over ("Most fund managers think of their alpha and not the bad side of the bets," one source remarked), risk management is being extended across portfolios and into various areas of the investment management process. "All our portfolios are now analyzed with multi-factor models," a manager at a large German firm remarked. The head of quantitative engineering at a large international firm said, "We are trying to implement risk management in as many areas as possible, for example global balanced funds, asset allocation and equities." Many sources noted that fixed income had its own risk management processes.

Risk management is being extended across portfolios and across processes.

One strong trend is the integration of risk management in the decision-making process with the use of ex ante risk measurement. The head of research at a major European group commented, "Risk management is now risk budgeting; it has become a proactive part of the management process. We use risk management to measure the strength of a view."

Risk management is being integrated, with the growing use of ex ante risk measurement.

Another trend is the splitting of risk management into two separate functions, a support function to portfolio managers and a central control function. This is perhaps related to the need to take on more risk to improve performance in today's difficult markets; in some instances, it is also a question of understanding if enough risk is being assumed. A CIO at a large international quant firm said, "Two years ago, risk management was an integral part of the fund manager's job. Now we have an independent risk group which uses the same models as the portfolio managers." Another source said, "We now have two risk functions, one which supports fund managers with their tracking error and one which reports to the board."

Risk management is being split into two separate functions, support and control.

Credit risk is attracting a lot of attention. Increased awareness of credit risk is now reflected in spreads. "Over the last two years we have become increasingly involved in the quantitative analysis of credit risk. We have noticed a higher correlation between factors and credit spreads," commented the head of fixed income quantitative modeling at a large US firm.

Awareness of credit risk is growing.

The relevancy of enterprise-wide risk management (ERM) to asset management is still being debated. "Risk management is here to stay; it has become more relevant, more integrated but, compared to a bank, ERM is not so relevant to an asset management firm. We have a fiduciary role to play vis-à-vis the investor," commented a source at a big American firm. Another US source said, "We are looking at enterprise-wide risk management. Is it relevant to asset managers? How much of the risk is investment risk that we must take on as an

The relevancy of ERM is still being debated.

asset manager? Our objective is to see what enterprise-wide risks might be avoided or mitigated; if you don't have derivatives, a lot of risk is just business risk, for example a 40% decline in the markets." Only a small number of asset management firms are known to have implemented ERM. A source at one which did said, "Investment products have a lot in common; if something goes wrong in one place, it will go wrong in a number of places. There is the need to aggregate risk."

5. INTEGRATING QUALITATIVE AND QUANTITATIVE INFORMATION

More than 60% of the firms reported having formalized procedures for integrating quantitative and qualitative input, though half of these mentioned that the process has not gone very far. 30% reported no formalization. Some of these have not yet reached a decision on the advisability; others are evaluating how to efficiently combine the two inputs. Two (US) firms mentioned having no integration problem as qualitative inputs have no place in their investment decision-making process if not in building models.

60% have some form of formalized procedure for integrating qualitative and quantitative inputs.

One way to handle the integration is through management structures for decision-making. A source at a large player in the bond market said, "We have regularly scheduled meetings where views are expressed. There is a good combination of views and numbers crunched. The mix between quantitative and qualitative input will depend on the particular situation. For example, if models are showing a 4 or 5 standard deviation event, fundamental analysis would have to be very strong before overriding the models."

Some firms handle integration through management structures.

Many firms have cast integration in a quantitative framework. The head of research at a large European firm said, "One year ago, the integration was totally fuzzy, but during the past year we have made the integration extremely rigorous. All managers now need to justify their statements and methods in a quantitative sense". Some firms are prioritizing the inputs from various sources. A business manager at a Swiss firm said, "We have recently put in place a scoring framework which pulls together the gut feeling of the fund manager and the quantitative models. We will be taking this further. The objective is to more tightly link the various inputs, be they judgmental or model results."

Others have cast integration in a quantitative framework.

Some firms see the problem as one of model performance evaluation. "The integration process is becoming more and more institutionalized," said the head of quantitative research at a big northern European firm. "Models are weighted in terms of their performance: if a model has not performed so well, its output is less

influential than that of models which have performed better."

In some cases, it is the portfolio manager himself that assigns weights to the various inputs. A source at a large firm active in the bond markets said, "Portfolio managers weight the relative importance of quantitative and qualitative input in function of the security. The more complex the security, the greater the quant weighting; the more macro, long-term, the less the quantitative input counts: models don't really help here." Other firms have a fixed percentage, such as 50/50, as corporate policy. Outside of quant-run funds, the feeling is that there is a weight limit in the range of 60%-80% for quant input. "There will always be a technical and a tactical element," said one source.

Assigning weights to the various inputs is handled differently, with some establishing a weight limit in the range of 50%-80% for quant input.

Some firms have developed a theoretical framework to integrate results from quant models and fundamental views. "To incorporate fundamental judgement, we have a partially automated theoretical framework plus a performance attribution evaluation system," said a partner at a US boutique.

A few quant-oriented firms have completely formalized the process. "Everything relevant has been built into the system. There is a degree of information, but if it can't be put into the model, it does not have a place," remarked a source at a medium-sized international firm. Firms which have both quant-run and traditionally run funds typically reported that formalization has been implemented in the former but remains to be implemented in the latter.

Integration has been completely formalized at a few quant firms.

6. AUTOMATIC HANDLING OF INFORMATION

Virtually all firms reported a partial automation in the handling of qualitative information. For the most part, a first level of automation - including automatic screening and delivery, classification and search - is provided by the Web and by suppliers of sell-side research, consensus data and news. "These suppliers are automating - and it is in their interest if they want to keep their customers," remarked one source.

A first level of automation is provided by the suppliers of research, consensus data and news.

30% mentioned having added functionality over and above that provided by third-party information suppliers, typically starting with areas easy to quantify such as earnings announcements or broker recommendations. Some have coupled this with quantitative signals that alert to changes or programs that automatically perform an initial analysis.

30% have added functionality over and above that provided by 3rd party suppliers.

Another area of investment is the automatic handling of internally generated information. "We have fifty internal fundamental research analysts. All their production and all our morning meetings are automated and can be searched on the Web," said the head of research at a large international firm. While some firms mentioned that they will be integrating internal and external research, turning to companies such as the Multex, others mentioned that they would not be making an effort as regards external research. A European source said, "Given serious questions about the quality, we are de-emphasizing the use of sell-side research; we will not be spending on automating here."

At some firms, internally generated information is being automatically classified and searched and, in some cases, integrated with external information.

About 1/4th mentioned that they will be further automating the handling of information in 2003. The braver will be tackling difficult tasks such as news summarization and analysis. "We have reached the conclusion that automatic summarization can be done and is useful. We are talking to a number of suppliers with whom we might work in the area of equities and fixed income," remarked a source at a large Swiss group that plans to move on this in 2003.

1/4th have plans to further automate the handling of information in 2003. Summarization is on the list of things to do at two firms.

Automatic news analysis has not enjoyed the take-up these authors foresaw in their 2002 report *Leveraging Unstructured Data in Investment Management*. For the most part, news analysis is still considered the domain of judgement. A few firms talked to for this study have attempted to tackle the problem but abandoned their efforts. "We did a lot of experimentation with fuzzy logic on news, but found that even if we were able to forecast an event we were not clever enough to forecast the related price movement," commented the head of quantitative research at a large European group. Another source at a quant-oriented firm said, "We tried to automate news analysis but found it very difficult. We concluded that most news was in the price."

Automatic news analysis was attempted by a few firms and found quite difficult but two others have this on their list of things to do.

Some firms remarked that automatic news analysis was of little interest to them as long-term investors. One firm that has decided not to invest for the moment evaluated the technology from a return-on-investment (ROI) perspective. "We look at the ROI of a model: How much will it cost to buy the data necessary to run the model? Then we ask ourselves: What are the factors that are remunerated? Our decision on what data to buy and where to spend on models is made in function of what indicators are the most 'remunerated'," commented the head of quantitative management at the firm.

However, several firms have plans to work on automatic news analysis in 2003. A source at a large quant-oriented firm that is planning to tackle the problem said, "There are hints that it has value."

7. EFFORTS IN MODELING: LOOKING BACKWARD AND FORWARD

Almost 70% of the firms reported an increase - from modest to significant - in their modeling effort for 2002 with respect to 2000/2001; the remaining, with one exception, reported that their effort in modeling as measured by headcount or technology spend was stable. In comparison, only 50% expect to see an increase in spending for 2003 relative to 2002 while some 45% expect their investment to remain stable and 5% expect it to be down.

With respect to 2000, 2001, investment in modeling in 2002 was up at 70% of the firms; 50% expect spending to be up in 2003 over 2002.

Among those that reported a significant increase in their modeling effort are firms that have recently embraced quantitative methods. According to the head of financial engineering at a French asset management firm, "Two years ago, we didn't use models; then top management decided to go in this direction. We will continue to grow our effort in modeling in 2003 as we extend quantitative models to cover all assets under management." In contrast, a source at a large well established quant firm said, " Our investment has been stable over the last two years: we have already made a huge investment in modeling." However, some established quant firms reported a significant increase in on-going investment.

At firms recently embracing quant methods, spending was up dramatically.

Modeling new phenomena or engineering new products are also factors behind an increased effort in modeling. The head of quantitative research at northern European firm mentioned a rise in modeling efforts as they started to model on the credit side. A source at an Italian firm said, "We have made a big investment in models to engineer index-tracking and guaranteed products." Some companies are using modeling to hold down the costs as they expand their product range. "We have increased our effort significantly as we are developing new products and moving into new markets. We will be using technology to hold down headcount costs," said a business division manager at a US firm.

The modeling effort was also up at firms modeling new phenomena, engineering new products or looking to add value.

The need to add value is also a factor. "In post bubble markets, overweighting technology stocks is no longer sufficient. We need to add value so we are ramping up our efforts in both quantitative modeling and fundamental research," commented a source at a US firm.

Management issues such as the need to arrive at a more industrial process or a more efficient organization were frequently cited as a factor behind increased efforts in modeling. "It's a question of quality control," a source at an Italian firm said. "We need to build financial products with industrial criteria. With markets performing so poorly, we believe the answer is in greater control, more formalization." A source at a US firm which has recently acquired a number of other

The need to add efficiency, structure and discipline to the process is behind an increased effort in modeling.

firms and is now going through a phase of consolidation remarked, "Top management decided to introduce quantitative methods to add more structure and more discipline to the process. We will continue to extend quantitative methods across the firm in the coming year."

Looking forward to yearend 2003, 50% remained guardedly optimistic about growth in investments despite the level of today's markets. "We made cost reductions everywhere, evaluating for example the level of service on screen-based information systems, but technology was spared," commented the head of research at a large international firm. A source at an Italian firm said, "Our objective is to arrive at industrial-like efficiency through better risk and quality control. We expect that quantitative methods will allow us to identify less efficient links in the chain where the quality of the product is weak. Today's difficult market situation imposes savings, but not in the area of modeling."

Many reported that cost reductions are being made, but not (yet) in technology.

At some firms, the difficult business environment is actually working in favor of spending on modeling. "We expect to increase substantially our modeling effort in 2003 with respect to 2002," commented a source at a Swiss firm. "Given today's challenging and complex environment, the difficulty of achieving performance objectives is creating the need for more investment in modeling; risk management is also becoming more and more important."

The difficult environment is working both for and against investments in modeling.

Not all firms were so confident that budgets would continue to grow: 45% evaluated that the efforts in modeling in 2003 would be stable relative to 2002 and 5% forecast a drop. "Good models have forecasting power and alpha. The more models the more structured and efficient the process, but models represent an extra cost at the moment," commented a source at a large northern European firm which expects 2003 spending to remain at 2002 levels. The business manager at another firm which expects to hold 2003 spending at 2002 levels also emphasized the importance of models, "We strongly believe that the systematic structuring of the process is the right way to go and the only way to get there is with models."

While not all firms have yet approved budgets for 2003, a widespread feeling is that simply maintaining headcount or spending is an achievement. "If it hasn't gone down, that's good news," remarked the head of quantitative engineering at a large international firm. A European source added, "If assets under management go down, our income and profits will come down. We need a higher level for markets if we are to invest."

8. CHANGING PROFILE OF PORTFOLIO MANAGERS

More than 20% consider that the profile of fund managers is already very quantitatively oriented; 40% remarked that fund managers have become more quant-oriented over the last two years; 20% said their profiles remained stable; one reported that fund managers were less quant-oriented than two years ago. Similar numbers resulted relative to expectations over the next twelve months. Italy and the UK were the two countries where least change was experienced and where least change is expected.

Fund managers are increasingly quant-oriented and the trend is expected to continue. Turnover and increased familiarity with models are contributing factors.

For the most part, it is a question of evolution. "Fund managers are now more receptive to quant ideas. In the post-bubble period, they will look at anything that works," remarked a source at a US boutique. It is also a question of turnover. "Mature fund managers are being retired and replaced by younger and more numerate persons. The average age is now some five years below what it was a few years ago and average comfort with technology is higher," said a source at a UK firm.

Even as the process is becoming increasingly quant-oriented, some noted that this does not necessarily imply that quants are moving out of research and into fund managers' shoes. "We are going towards greater specialization and it is becoming more difficult to move out between functions. We are not seeing quants trying to switch to a fund manager's job as quants are now better integrated and better remunerated," said the head of quant research at a large US organization.

But quants are not necessarily switching to a fund manager's job.

In the case of one firm recently gone quant, the fund manager has simply been eliminated. "We overhauled the fund management process, eliminating the role of the fund manager," said a source at a large international firm. "The function has been split into four parts: product management, responsible for client support; research which produces the forecasts; implementation which transforms forecasts into portfolios and IT which provides the technology infrastructure."

One firm has recently eliminated the role of portfolio managers.

A few persons remarked that in today's difficult markets experience matters. "We have little visibility on how things are going to evolve. We are thinking about how to add value and we are not sure that models will continue to perform," said a source at a large US firm. "With all the uncertainty in the markets, it is not possible to rely on one or even several models; it is experience that counts."

Others believe that in today's difficult markets, experience matters.

CLOSING REMARKS

Over the past two years, European firms have been catching up with their US counterparts in the adoption of quantitative methods in asset management. These have been relatively heady days for European quants. In the US, the accent has shifted somewhat to one of producing new investment themes. A business manager at a US boutique said, "Quantitative methods are a more predictable, more efficient way to run a business, but quant methods by themselves are not enough. There is the need to look for more ideas and then apply quant methods to these." A widely held evaluation is that both the quantitative and the qualitative will be called for, especially given today's difficult markets. The head of research at an international quant-oriented organization said, "We expect to see the quantitative and qualitative increasingly mixed. We will see a more widespread use of quant methods entering into portfolio construction and performance attribution. We are going towards a convergence of the quantitative and the qualitative."

Moving towards a convergence of the qualitative and the quantitative?

About The Intertek Group

The Intertek Group is a Paris-based research and consulting firm specialized in the financial services sector. Intertek partners have authored the books *Modeling the Market: New Theories and Techniques* and *Risk Management: Framework, Methods and Practice*, both published in the States by Frank J. Fabozzi Associates.

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