Quality Of Trading Risk Management Practices Varies In Financial Institutions

During the late fall of 2004, Standard & Poor’s Ratings Services conducted global in-depth reviews of the trading risk management (TRM) practices at 23 leading financial institutions. The reviews entailed detailed interviews and presentations by senior management of the institutions surveyed to Standard and Poor’s. This article provides the findings of that survey and explains the process and methodology employed by Standard & Poor’s in assessing the TRM practices at these institutions. As a caveat, it should be noted that at the time Standard and Poor’s conducted its reviews, a few institutions were in the process of enhancing some of their trading risk management practices. However, that did not have any material impact on the general findings described below.

Methodology

Standard & Poor’s developed a detailed questionnaire that spanned three broad components, Policies, Infrastructure, and Methodology, to assess the TRM practices of financial institutions.

For the Policy dimension, we look at four key variables: stature of risk management, risk appetite, risk control process, and risk disclosure. In assessing the stature of the risk function, the questionnaire was designed to evaluate the role and structure of risk management (RM) and the overall quality of the risk function. For the risk appetite, the questionnaire focused on the process by which the risk tolerance is established both qualitatively and quantitatively and the robustness of the new product approval process. In looking at the risk control process, the questionnaire aimed at an understanding of the documented policies, the limit-setting process, and the limit-monitoring policies that the institutions had established. With respect to risk disclosure, the questionnaire assessed the quality of both internal and external risk disclosure.

For the Infrastructure component, the questionnaire assessed the quality of two primary attributes: risk architecture and back-office (B/O) operations. For risk architecture, we looked at the degree to which the risk systems are integrated, the data recovery process, and the quality of the business
continuity planning strategy. In the case of B/O operations, we evaluated their structure, the quality of the personnel employed, and the integrity of the data sources.

The Methodology component assessed the quality of the valuation techniques employed and the robustness of the model vetting process. The questions relating to the valuation techniques evaluated the process employed by the institution to determine the relevant pricing models for all transactions and the methodology adopted to assess counterparty credit risk in the trading book. Standard & Poor’s also assessed the various risk metrics, including the value-at-risk (VaR) methodology, stress tests, sensitivity analysis, and other risk measures employed to assess and measure risk in the traded portfolio. The model vetting process evaluated the quality of the process for validating pricing models and the frequency with which they are reviewed. In addition, the process and frequency for back testing the VaR models as well as the pricing models were reviewed.

The Assessment Process

Standard & Poor’s reviewed the TRM practices of 23 institutions globally (the results compiled below represent 20 institutions, as three required second reviews). Each institution’s TRM practices were assessed based on criteria developed by Standard & Poor’s and what Standard & Poor’s believes to be “best practices,” which are not necessarily those practices that are widely applied in the industry.

Each institution’s risk management practices were assessed and opined on by Standard & Poor’s enterprise risk management committee, which is comprised of a global group of senior analysts. Each of the attributes described above was assessed and evaluated on a four-point scale. The quality of an institution’s practice with regard to a specific attribute was opined by the committee to be weak if a majority of the criteria were not satisfied; adequate if about two-thirds of the criteria were satisfied; strong if a significant number of the criteria were satisfied; and very strong if nearly all of the criteria were satisfied.

Results and Analysis

The stature of risk management

In assessing the stature of the risk management function, Standard & Poor’s evaluated three attributes: the role and structure of risk management, the quality of the risk management function, and the compensation of the risk function. The overall stature of the risk management function was assessed with a weighting of 60% for role and structure and 40% for quality. Compensation was not given any weighting.

Chart 1 shows that while the role and structure of 15% of the institutions surveyed were opined to be weak, they were considered very strong in 5% of the institutions.
In the case of the quality of the risk function, Standard & Poor’s opined that the majority of the institutions were adequate, while over a third were either strong or very strong. When these three attributes were assessed on an overall weighted basis, Standard & Poor’s considered only one in 20 of the institutions to have a risk function stature that was considered weak, while the majority of the institutions were considered to have a risk management stature that was either strong or very strong (see Chart 2).
For those institutions where the overall stature of the risk function was either strong or very strong, the risk management function was an equal (or relatively close to equal, rather than being a pure police function) partner with the business, interacting continuously with all units, discussing their risks, and ensuring that it was aligned with the stated tolerance, budget, and strategy of the institution. The risk management function was proactive and constantly acting in the interest of the institution’s shareholders, carefully weighing the risk-reward trade-off and acting as a key decision-making unit in the budget and planning process for the institution.

In the case of those institutions where the weighted stature of the risk function was very strong, the risk management function was also structurally a separate unit independent of the business, with the chief risk officer (CRO) reporting to the CEO. Standard & Poor’s believes that a structure where the CRO reports to the CFO of the business may create the potential for a conflict of interest, and hence this stature was considered marginally weaker. For the risk function to be an effective and respected value-added unit of the institution, the CRO must report independently of the business to the most senior management of the institution.

**Risk tolerance**

The quality of the risk tolerance for an institution was assessed using two key variables: the process by which the firm established its risk appetite, and the process and controls involved in the approval of new businesses and new transactions.

Standard & Poor’s found that in terms of establishing the risk tolerance, only a quarter (see Chart 3) of the institutions surveyed had very strong practices and expressed the process for setting the risk appetite at a holistic level in qualitative terms, clearly identifying how it fits in with their tactical and strategic objectives, and the impact of the stated appetite on earnings, volatility of revenues, capital, and reputation. The qualitative
expression of that risk appetite was also succinctly translated into day-to-day tractable quantitative measures. No institution was considered as having weak practices in establishing its appetite for risk.

Chart 3
Risk Appetite

One surprising observation, however, was that in terms of processes and controls for the approval of new products/businesses, more than a third of the institutions’ practices were opined as being weak, while more than two-thirds were considered as having new product approval (NPA) practices that were either weak or adequate. Most of these institutions lacked a clear and crisp articulation of what constituted a new transaction. There was a lack of clearly documented policies regarding this process. Less than a third of the institutions were opined as having either strong or very strong NPA practices, and these institutions had well-documented policies for this process that were reviewed annually and signed off on by risk management. In addition, these institutions had a solid approach to reviewing these transactions, with a review tenor not exceeding six to nine months. In addition, these institutions had done a good job of integrating the use of technology into the approval process.
Standard & Poor’s considers both the risk appetite and the NPA process to be of equal importance. On an equally weighted basis, Standard & Poor’s was of the opinion that no institution displayed weak practices in terms of the structure and controls around the process adopted for setting the overall risk appetite (see Chart 4). Standard & Poor’s considered that on a weighted basis, one in five institutions surveyed exhibited very strong practices with respect to overall risk tolerance. Based on these observations, Standard & Poor’s opined that risk tolerance is an area where almost four out of every five institutions surveyed have an opportunity to enhance and strengthen their processes.

**The risk control process**

In looking at the risk control processes, Standard & Poor’s reviewed the documented risk management policies, the limits-setting process, and the process and controls for monitoring the limits.

Standard & Poor’s observed that in terms of having well-documented risk management policies, only 10% of the institutions surveyed had either no formally documented policies or documented policies that were of significantly poor quality (see Chart 5). However, it should be noted that not all the institutions that were opined as being weak in terms of documented policies were among those that had had weak limits-setting and monitoring processes. In most cases, policies were reviewed annually and approved by the Board Risk Committee.

Standard & Poor’s believes that risk management should assign limits to the business units and all the way down to the desk heads after dialogue with the business heads and other senior management through the Risk Management Committees. Desk heads must then assign limits to individual traders after dialogue with RM. Standard & Poor’s observed that 15% of the institutions surveyed have practices that were opined as falling short of industry standards, and in some cases there were no individual trader limits being assigned by the desk.
heads. By the same token, it was opined that the practices observed by 5% of the institutions were of a very high quality that exceeded industry practices. In such cases, it was the authority and responsibility of RM to assign limits down to the desk head level after thorough consultation with the business.

![Chart 5](chart5.png)

**Risk Control Process**

- % Weak
- % Adequate
- % Strong
- % Very Strong

It was also observed that VaR limits were the most commonly used aggregate limits. Standard & Poor’s observed that institutions that were above or exceeded industry standards were setting limits on several aggregate risk measures including stress limits, sensitivity limits, concentration limits, and stop-loss limits, with some institutions employing intra-day limits as well.

With respect to limits monitoring, Standard & Poor’s observed that institutions that had very strong practices in place imposed robust structures for the granting of temporary limit exceptions, in some cases imposing a policy that the tenor of temporary limit exceptions should not exceed 10 business days.
After assigning a 20% weight to documented policies and a 40% weight to both limits setting and monitoring (see Chart 6), Standard & Poor’s observed that no institution was deemed to have aggregate risk control processes that were weak, while half the number of institutions surveyed were opined to have aggregate risk control practices that were considered to be either strong or very strong.

Risk disclosure
With respect to risk disclosure, Standard & Poor’s opined on the observed quality of internal and external communication.

Based on the observed practices, Standard & Poor’s opined that the quality of internal communications was such that 15% of the institutions surveyed have practices that are very strong (see Chart 7). The quality of the internal reporting to senior management within these institutions was very high both in quantitative summary representations of the risk metrics and in their qualitative description. These institutions also provided senior management with a clear articulation of the nonfinancial risks that their institution was exposed to.

The other end of the spectrum had about one in five institutions for which Standard & Poor’s opined that the quality of internal communications was weak and below what was observed in the industry. The quality of the internal reporting was shoddy and lacked a clear qualitative articulation of the risks.
With respect to the quality of external disclosure, Standard & Poor’s observed that there was no institution with practices that were opined as being weak, while more than a third were considered to be strong. However, Standard & Poor’s believes that in the interest of shareholders and as a discipline toward best risk management practices, institutions must provide external risk disclosure that goes beyond the minimum regulatory requirements with a clear qualitative and quantitative articulation of the firm-wide risk appetite and risk appetite usage and the potential exposure of “tail risk.”

Valuation techniques
In assessing the quality of the valuation process employed by an institution, Standard & Poor’s evaluated whether relevant pricing models existed for all transactions and the methodology adopted by the institution to assess counterparty credit risk in the trading book. Standard & Poor’s also assessed the various risk metrics, including the VaR methodology, stress tests, sensitivity analysis, and other risk measures employed to assess and measure risk in the traded portfolio.
For one in 10 of the institutions surveyed (see Chart 8), the quality of the pricing models was opined to be weak and below what was observed in the industry, and half of the institutions had pricing models that were considered strong. This resulted primarily from the fact that Standard & Poor’s put a higher weighting on the quality of the process for assessing counterparty credit risk. There were a larger number of institutions that used a simulation approach to calculate the credit exposure on the trading book. Standard & Poor’s prefers that the potential future exposure measure for assessing counterparty credit risk be one that is simulated under stochastic assumptions, rather than one that is an add-on measure based on the residual tenor and historical volatility of the specific transaction.

In terms of the quality of the risk metrics or risk measures used, Standard & Poor’s considered a historical VaR calculation to be basic. Parametric (or variance-covariance) VaR methodologies are considered inadequate and below industry standards. Standard & Poor’s observed that 20% of the institutions surveyed were weak and inadequate with respect to the VaR methodology employed, while 10% of the institutions were using both a historical (as specified by the regulators) and a simulation (or Monte Carlo) based VaR method to assess their aggregate risk. The quality of the institution’s stress testing and sensitivity analysis also contributed to Standard & Poor’s opinion that the quality of their risk measures was strong for 35% of the institutions surveyed.

Most of these institutions constructed stress scenarios in conjunction with macroeconomic analysis, historical events, and hypothetical events. Correlations across risk factors were carefully analyzed and accounted for in the scenario construction to assess implied “knock-on” effects. Stress tests were run at varying levels of granularity depending on the concentrations and vulnerability of their portfolio.

To assess the overall quality of the valuation techniques, Standard & Poor’s assigned a weighting of 40% for pricing models and 60% for the institution’s risk metrics. On a weighted basis, no institution was considered as having weak practices with regard to valuation techniques.
Model Vetting Process

Based on the observed practices, Standard & Poor’s believes that two out of five institutions surveyed have strong practices for validating their pricing models (see Chart 9). In these institutions, Risk Management clearly specified and documented the mathematical logic, theoretical assumptions, and parameter estimates underlying each of the valuation models. Models were reviewed at least annually, with all appropriate data sources for the inputs to the models and the relevant calibration procedures for estimating model parameters documented.

Chart 9

Model Vetting Process

With respect to back testing of the pricing and VaR models, Standard & Poor’s opined that a quarter of the institutions displayed substandard and weak practices. In most of these institutions, the back testing of VaR was performed without using the synthetic or hypothetical or “clean” profit and loss, with limited levels of granularity. The quality of the back testing for less than a third of the institutions was opined as being strong. On an equally weighted basis (not shown in Chart 9), the overall quality of the model vetting process for one in 10 of the institutions surveyed was opined to be weak and below what was observed in the industry.

Infrastructure

In assessing the quality of the risk infrastructure, Standard & Poor’s opined on the quality of the risk architecture and the B/0 operations of the institution. Standard & Poor’s was of the opinion that for one in five of the institutions surveyed, the overall quality of their risk infrastructure was strong.
Most of these institutions had high quality data recovery processes that were tested and maintained frequently. In addition, these institutions had a very clear business continuity plans that was discussed with and communicated to all key individuals and fully tested at least twice a year.

**Conclusion**

To summarize, one surprising observation was that in terms of processes and controls for the approval of new products, more than two-thirds of the institutions surveyed were considered to have NPA practices that were either weak or adequate. It is not difficult to conceive of a situation where weak NPA processes coupled with a lack of model vetting standards could create an environment for potential material concerns. It is Standard and Poor’s belief that this is clearly an area where institutions have the most room to enhance their risk management procedures and controls.

One reassuring finding was that for a significant majority of the institutions surveyed, the stature of the risk function was opined as being either strong or adequate. This is certainly encouraging and indicates the growing importance of the risk function from a control and policing role to one that is a strategic partner with the business.

In general, while there was no single institution with best TRM practices across the board, a number of institutions displayed pockets of good risk management practices within the trading operations.