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Via email to: baselcommittee@bis.org

25 February 2011

Dear Sirs,

The York Management School ('the School') welcomes this opportunity to comment on two consultative papers issued by the Basel Committee on Banking Supervision in December 2010:

- Sound Practices for the Management and Supervision of Operational Risk ('Sound Practices Paper')
- Operational Risk - Supervisory Guidelines for the Advanced Measurement Approaches ('AMA Paper')

The School's interest in this subject matter is a consequence of our research conducted into risk based accounting techniques. Our initial findings have been published in the Journal of Financial Transformation¹ where we conclude that the explicit and dynamic quantification of operational risk exposures on a standardised, continuous and replicable basis is achievable through transaction based accounting solutions. The aforementioned research paper describes one such technique 'Risk Accounting' which is presented in outline in this letter.

Our examination of relevant academic literature, discussed in the main body of this letter, leads us to conclude that limitations inherent in the AMA makes further research into alternative operational risk quantification and reporting techniques potentially valuable. The AMA Paper makes reference to such limitations. In paragraph 31 the observation is made that the range of practice among banks is broad with a diversity of modelling approaches that affect the AMA methodology of individual banks and, ultimately, the amount of capital required to be held with respect to operational risks. Paragraph 32 further comments that, while flexibility allows modelling to reflect individual bank risk profiles, it also raises the possibility that banks with similar risk profiles could hold different levels of capital under the AMA if they rely on substantially different modelling approaches and assumptions.

¹ Grody, A. D., Hughes, P. J. and Toms, S., 2010, "Risk Accounting - A Next Generation Risk Management System for Financial Institutions", Journal of Financial Transformation No. 29, pp 43 to 56

It is evident from the above that the AMA lacks a common exposure measurement framework and a standardised unit of risk measurement which inevitably leads to problems related to the consistency and comparability of AMA reporting systems. This in turn presents the stakeholder community with concerns regarding the reliability and credibility of publicly disclosed risk information.

We find further corroboration from written testimony prepared for the U.S. House of Representatives Financial Services Committee in October 2009, by Professor Andrew Lo that alternative risk quantification techniques may be potentially valuable. Whereas Professor Lo's observations relate specifically to systemic risks we believe they are valid for all operational risks, *"Before we can hope to reduce the risks of financial crisis, we must be able to define and measure those risks explicitly. Therefore, a pre-requisite for effective financial regulatory reform is to develop dedicated infrastructure for defining, measuring, monitoring, and investigating systemic risk on a standardized, ongoing, and regular basis."*

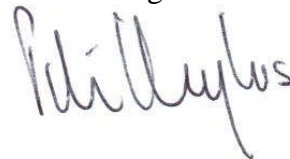
Our comments in this letter are intended to respectfully direct the Committee's attention to the existence of operational risk quantification techniques that may represent a valuable alternative to the AMA. We consider our purpose in preparing this letter achieved if it serves to stimulate further research into the methods outlined in this letter and similar techniques.

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The Current State of Operational Risk Management

Risk managers have long been aware of the difficulties attached to the measurement and management of operational risks particularly where these relate to the translation of operational metrics into risk metrics. All the evolving risk measurement systems and generally accepted accounting conventions have been devoid of the ability to accommodate operational metrics into the risk reporting and aggregation methods used to oversee business performance as reflected in audited financial statements.

Indeed, the current financial crisis can be linked to an inability to record and account for risk exposures in a timely manner. Recent failures of financial institutions provide some measure of the degree to which accumulating risk exposures escaped the exercising of business judgment simply because executive management, investors, auditors and regulators were unaware of their existence on such a scale. The result is risk management systems and, consequently, financial statements that failed to report the life-threatening concentrations of risk exposures that had unknowingly accumulated in so many financial organisations of all sizes around the globe.

In response to the Basel Committee's inspired regulatory changes and high profile cases of fraud and failure, a large body of academic literature has accumulated on the various aspects of operational risk modelling.² Specifically, a number of studies have examined the problems related to the quantification of operational risk and associated events and processes, for example legal risk, that might defy precise quantification.³

Similar problems arise from detected frauds and errors, where infrequent high value occurrences produce an uneven pattern of loss history. Compared to credit and market risk, operational risk has a dramatically different distribution⁴ requiring different measurement and modelling approaches, characterised by assumptions about the statistical distribution of the loss history and calling on advanced mathematical techniques and theories.⁵ The objective of such techniques is to produce both a consistent measure of risk exposure and robust estimates of Value-at-Risk (VaR).

However, a consequence of attempts at modelling operational risk has been to create significant differences in terms of risk typologies, metrics and mathematical analysis. As commented in paragraph 31 of the AMA Paper the range of practice is broad with a diversity of modelling approaches being adopted.

² Cruz, M., 2002, "Modeling, Measuring and Hedging Operational Risk," Wiley, Chichester and Cruz, M., ed. 2004, "Operational Risk Modeling and Analysis: Theory and Practice," Risk Waters Group, London and King, J., 2001 "Measurement and Modeling Operational Risk," Wiley

³ Chavez-Demoulin, V., Embrechts, P. and Neslehova, J., 2006, "Quantitative Models for Operational Risk: Extremes, Dependence and Aggregation," Journal of Banking and Finance, Vol. 30 (10), pp.

⁴ Nocco, B. and Stultz, R., 2006, "Enterprise Risk Management: Theory and Practice," Journal of Applied Corporate Finance, Vol. 18, No. 4, pp. 8-20.

⁵ For example Chavez-Demoulin et al, 2006, and Allen, L. and Bali, T., 2007, "Cyclicality in Catastrophic and Operational Risk Measurements," Journal of Banking & Finance, Vol.31(4), 1191-1235

It is questionable whether a mathematically modelled view of past losses incorporating the four data elements referred to in paragraph 41 of the AMA Paper, and manifest in capital provisioning, would prevent too much risk from being taken. In today's globalised banking markets characterised by high concentrations of operational risks in centralised processing hubs and increasingly complex products, the more sophisticated financial transactions and trading schemes executed by banks have the potential to trigger a cocktail of risks – credit, market, interest rate, liquidity, operational – that in the aggregate are capable of cascading exposures to risk far in excess of their notional values and the capital provisioned based on past loss events.

Risk Accounting

Risk accounting is designed to account for transactions on a risk-weighted basis. Transaction risk was one of the key tenets of the operational risk discussions that took place across the many years that Basel I, II and III have been debated. The rationale on which the risk accounting methodology is constructed involves the combination of operational metrics with risk metrics around transactions. These are presented in tables populated with risk factors and associated risk-weights that relate to three measurable properties inherent in all products and related business processes: (1) notional transaction values; (2) the inherent risk characteristics of different products; and (3) the risk mitigation effectiveness of related systems and processes. The applicable risk-weights are extracted from the respective tables and appended to the transactions which are then processed to produce quantitative and qualitative risk metrics using a new unitised valuation metric referred to as a 'Risk Unit'.

This proposed technique is analogous to management accounting where transactions are tagged with the management information needed to drive enterprise-wide management reporting (customer codes, product codes, organisational codes, transfer pricing factors, unit costs, etc.). For risk accounting the proposed method tags these same transactions with the risk information from the tables described above in order to drive enterprise-wide risk reporting.

Risk metrics expressed in Risk Units applied at the transaction level can then be aggregated to provide departmental, divisional, subsidiary and group-wide views and by categories such as product, geography, business unit and risk type.

Risk Accounting and Predictive Modelling

The Risk Accounting method of calculating risk exposure described above provides a view of residual risk that is dynamically updated when changes in causal factors occur. In this way the potential for statistical correlation of measurements of exposure to operational risk and loss history is created which, over time, will cause the risk metrics generated through this new method to become inherently predictive. This is quite different from, but complementary to, the backward-looking AMA capital calculations that financial institutions rely upon today in order to gauge the largest unexpected loss that may occur within a given confidence level and time horizon.

More importantly it is built from the ground up allowing for the intellectual property of operating management to be embedded in the very fabric of the risk measurement

system. Institutionalizing such knowledge into the operational risk activity creates credibility and actionability that are critical components in enabling a risk culture to evolve and continual risk mitigation to be its outcome. Without a measure of risk exposure and a dynamic quantification mechanism applied to risk exposures as they accumulate it is not possible for a firm to execute preventive actions.

The purpose of the financial product based approach to risk-weighting transactions in the Risk Accounting method is to assign *ex ante* values to risky processes which can subsequently be correlated with loss history events and, in turn, economic capital as they evolve.

Information feedback loops can be developed to provide management with near real-time risk exposure and risk management data. In complementary fashion, such an approach will help build more robust, comparable and, therefore, consistent estimates of Value-at-Risk (VaR). Prior work⁶ has demonstrated that a common measurement framework, connecting operational metrics to risk metrics, will assist the development of better systems to account for all the dimensions of risk, including those captured in expected losses (capital reserves), unexpected losses captured in capital charges and those yet to be captured by measurement of exposures to potential losses. This latter dimension of a prospective measure of 'loss potential' is best captured by the proposed introduction of a new unit of measurement for risk exposures and a methodology to map operating metrics to it, in the proposed system of Risk Accounting.

The proposed method of Risk Accounting is offered as a substitute for historical leaning AMA, providing a prospective method to observe risk exposures at both an aggregate and granular level, with the ability to drill down to the root causes of any observed increase in risk exposures. Actions can then be taken to both examine the effects of risk mitigation projects underway and to initiate new projects before exposures turn into losses.

Conclusion

The method described in outline in this letter, and in more detail in the aforementioned research paper, addresses the recent academic literature and the regulatory agenda in bank risk reporting. It achieves this by offering, in conjunction with current top down practices, a bottom up transactional method that offers tractable managerial information in conjunction with established methods and an extension of current financial reporting through additions to the underlying accounting system.

If techniques can be applied for the better management of risk factors, as herein described in our view of a Risk Accounting method and system, their disclosure and audit should add value from the perspective of the stakeholder community. Investors potentially face a 'market for lemons' problem,⁷ in which they have difficulty

⁶ For example, Grody, A. and Hughes, P., 2008, "Financial Services in Crisis: Operational Risk Management to the Rescue," Journal of Risk Management in Financial Institutions, Vol.2 (1), pp. 47- 56.

⁷ Akerlof, G.A., 1970, "The Market for 'Lemons': Quality Uncertainty and the Market Mechanism," Quarterly Journal of Economics, 84(3), pp. 488-500

discerning effective management processes from the ineffective. Such problems might be compounded insofar as specialist and technical disclosures have no information content for outside investors.⁸ There is thus a quality signalling rationale for disclosures that effectively convey the truth of superior processes to non-specialist investors.⁹ At the same time, the process and the information generated by the Risk Accounting method outlined in this paper can both be subject to audit and external scrutiny, and correlated to actual loss experience over time adding to their consistency and credibility.

To the extent that our method of Risk Accounting is successful there is reassurance for regulators and a 'better markets' solution which, in the face of the current financial meltdown, is surely needed.

Our research suggests that new directions are possible, and that this proposed method, perhaps in its minimalist contribution, would simply stimulate others toward further research into these new directions.

⁸ Brown, S., et al, 2008, "Mandatory Disclosure and Operational Risk: Evidence from Hedge Fund Registration," *Journal of Finance*, Vol.63(6), pp. 2785-2815

⁹ Toms, S., 2002, "Firm Resources, Quality Signals and the Determinants of Corporate Environmental Reputation: Some UK Evidence," *British Accounting Review*, Vol.34, pp.257-282.