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via email to: baselcommittee@bis.org

Tuesday, 03 September 2013

To: The Basel Committee,

We welcome this opportunity to comment on the discussion paper issued by the Basel Committee on Banking Supervision (Committee) in July 2013 entitled 'The Regulatory Framework: Balancing Risk Sensitivity, Simplicity and Comparability' (Discussion Paper)¹

Our interest in this subject matter is the consequence of our ongoing research into improved mechanisms and techniques for risk quantification and risk data aggregation.² Our specific research has explored these areas from the following perspectives:

- 'Risk Accounting'... the convergence of accounting and risk management systems within a common enterprise exposure measurement framework
- 'Global identification Standards'... for example, the Legal Entity identifier (LEI) used to aggregate counterparty exposures across the industry
- 'Big Data' ... intelligent semantic networks for systemic risk analysis

We collectively refer to these research initiatives, all of which have been translated into implementation modules, as 'risk adjusting the financial system'.

Given the subject matter of the Discussion Paper is capital adequacy we have focused our comments in the pages that follow on Risk Accounting. For discussion of the other perspectives 'Global Identification Standards' and 'Big Data' we refer to our comments submitted with respect to the

¹ Basel Committee on Banking Supervision, 'The Regulatory Framework: Balancing Risk Sensitivity, Simplicity and Comparability', (July 2013), <https://www.bis.org/publ/bcbs258.pdf> accessed on 9th August 2013

² Grody AD, Hughes PJ, Fernandes KJ, Phillips O, and Toms JS, 'Risk Accounting: An Accounting Based Approach to Measuring Enterprise Risk and Risk Appetite' (October 20, 2012). Available at SSRN: <http://ssrn.com/abstract=2165034>, and Hughes P, Grody AD, Toms JS, 2010, 'Risk accounting - a next generation risk management system for financial institutions', The Capco Institute Journal of Financial Transformation, 29 (1): 43-56

Committee's March 2013 consultative paper 'Supervisory Framework for Measuring and Controlling Large Exposures'³

Our detailed comments on the Discussion Paper are included in the body of this report. Our responses to the 'Questions for Feedback' (section 6 of the Discussion Paper) are provided in appendix 1, an overview of Risk Accounting is provided in appendix 2 and our assessment of Risk Accounting according to the Committee's risk sensitivity, simplicity and comparability indicators (annex 1 of the Discussion Paper) is included in appendix 3.

The aforementioned research programme is a collaborative venture between Financial InterGroup, The York Management School and Leeds University Business School.

Yours sincerely,



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³ Grody AD, Hughes PJ, Fernandes KJ, and Toms JS, 'Comments on the Consultative Paper – Supervisory Framework for Measuring and Controlling Large Exposures' (June 2013), <http://www.bis.org/publ/bcbs246/financialinterg.pdf> accessed on 11th August 2013

Contents

Introduction	4
The Origins of Complexity in the Capital Adequacy Framework	4
Enterprise Risks	6
The Current State of Bank Regulation and Accounting	6
The Convergence of Accounting and Risk Systems.....	7
Reengineering the Global Financial System.....	8
Risk Data Aggregation and Risk Reporting.....	8
Summary	9
Appendix 1	11
Introduction.....	11
Question 1	11
Question 2	11
Question 3	12
Question 4	12
Question 5	12
Appendix 2	14
Risk Accounting - Overview	14
How Exposure to Risk is Created	14
The Risk Unit (RU) – Three Core Metrics.....	15
Preventing Unexpected Losses.....	16
The Value Table	16
Financial Risks and Exposure Uncertainty Factors (EUFs)	17
Transaction Processing Risks	18
Best Practice Scoring Templates (BPSTs).....	19
Risk Accounting - Process Overview	20
Reporting	21
A Better Method for Regulators and Investors	22
Appendix 3	24
Introduction.....	24
A) Potential indicators for assessing simplicity	24
B) Potential indicators for assessing comparability	25
C) Potential indicators for assessing risk sensitivity	26

Comments on the Discussion Paper - Balancing Risk Sensitivity, Simplicity and Comparability

Grody, A.D., Hughes, P.J., Toms, J.S.

August 2013

Introduction

We share the Committee's concern that undue complexity should be avoided when formulating regulatory frameworks and associated rules. The fact remains, however, that bank regulation is already excessively complex and, in many aspects requires updating rather than incremental change. Indeed, our conclusion is that it requires significant rethinking. It is to this end that our research has been focused for some years and provides the basis for the comments contained in this report.

The Origins of Complexity in the Capital Adequacy Framework

The Discussion Paper suggests that complexity is driven by a desire for risk sensitivity in the capital adequacy framework. We believe the framework's excessive complexity comes, not from the desire for risk sensitivity which is a fundamental requirement of any meaningful capital adequacy framework, but from the Committee's acceptance of banks' internal models as a basis for regulatory capital calibration as defined in Basel II.⁴ As the Discussion Paper observes, large internationally active banks are likely to employ a range of modelling techniques to determine their consolidated capital requirements. Larger, more sophisticated banks can rely on hundreds of such models which, in turn, may rely on large numbers of diverse inputs some comprising parameters that are themselves estimated using complex quantitative modelling techniques.⁵

The Discussion Paper further observes that banks' internal models are continuously evolving to reflect advances in risk management.⁶ This continuous evolution also applies to the data that are input to the models. Such evolutionary processes in banks ensure that, in an increasingly sophisticated and constantly changing operating environment, banks' risk-adjusted returns to shareholders are maximised primarily through achieving precision in the pricing of risk and the allocation of risk capital.

Banks' models are also constructed to ensure that risks are captured in a manner consistent with their setting and monitoring of risk appetite. This differs from regulatory capital calculations that

⁴ Basel Committee on Banking Supervision, '*Basel II: International Convergence of Capital Measurement and Capital Standards: A Revised Framework, (Comprehensive Version)*', (June 2006)

⁵ See footnote 1, Paragraph 35

⁶ See footnote 1, Paragraph 12

seek to estimate tail risks relative to specific risk types and to the financial system as a whole. The Discussion Paper concludes that a model that is suitable for internal risk management purposes may not be entirely so for the calibration of regulatory capital.⁷

The Discussion Paper makes reference to Basel III⁸ and the establishment of the leverage ratio which, among other benefits, is intended to provide protection against model risk.⁹ The Discussion Paper refers to well known cases where the quest for modelling precision gave rise to costly errors and further comments that the adoption of internal models in the capital adequacy framework can provide incentives for banks to underestimate minimum capital requirements through distorting model-based calculations of risk-weighted assets.¹⁰

We note that prior to the issuance of the Discussion Paper the Committee had already voiced criticism of its own risk-based capital regime. In its review of trading book capital requirements¹¹ reference was made to weaknesses involving the use of value-at-risk (VaR) methodologies for determining regulatory capital requirements. Most significantly, the Committee observed that the prevailing regulatory capital adequacy regime constituted a “provision of incentives for banks to take on tail risk” which is contrary to precisely what a regulatory capital regime is intended to prevent. The authors of this letter commented on the Committee’s trading book review observing that VaR’s limitations, as a basis for regulatory capital calibration, were also a consequence of the non-additive nature of VaR and inherent variations in modelling theories, beliefs and assumptions that may exist between functions within enterprises and between enterprises.¹²

Similarly, in a previously issued paper concerning the Advanced Measurement Approach for operational risk¹³ the Committee highlighted limitations in the adoption of banks’ internal models for the calculation of operational risk capital commenting that it raises the possibility that banks with similar risk profiles could hold different levels of capital if they rely on substantially different modelling approaches and assumptions.

The combination of vast numbers of multifaceted, non-standard, non-additive and continuously evolving internal models used across the industry to manage risk, that are not necessarily aligned with regulatory aims, together with the incidence of model risk have resulted in a capital

⁷See footnote 1, Paragraph 65

⁸ Basel Committee on Banking Supervision, ‘*Basel III: A Global Regulatory Framework for More Resilient Banks and Banking Systems*’, (June 2011)

⁹ See footnote 1, Paragraph 57

¹⁰See footnote 1, Paragraph 42

¹¹ Basel Committee on Banking Supervision, ‘*Fundamental Review of the Trading Book*’, (May 2012)

¹² Grody AD, Hughes PJ, Fernandes KJ, and Toms JS, ‘*Comments on Aspects of the BIS’s Fundamental Review of Trading Book Risk Measurement Methods*’, (September 2012), <http://www.bis.org/publ/bcbs219/financialinterg.pdf>, accessed on 10th August 2013

¹³ Basel Committee on Banking Supervision, ‘*Operational Risk – Supervisory Guidelines for the Advanced Measurement Approaches*’, (June 2011)

adequacy framework that is beyond effective supervision. Indeed, it could be argued that a capital adequacy framework has evolved where banking regulators and supervisors are required to accommodate the requirements of the regulated whereas an effective regulatory framework should demand the reverse.

In these circumstances it is questionable whether the desired aims of regulatory reform can be achieved merely by reducing complexity. Rather, the adoption of banks' internal models as a basis for the calibration of regulatory capital requires rethinking.

Enterprise Risks

The primary focus of the Discussion Paper is credit risk. We believe that meaningful regulatory reform can only be achieved by balancing risk sensitivity, simplicity and comparability across the whole enterprise relative to all risk types... credit, market, operational, liquidity and interest rate. We note in this regard that the Discussion Paper states that credit risk is "still the most important risk category for banks".¹⁴ We would take a somewhat different view. The global financial crisis and other highly publicised incidences of massive unexpected losses suffered by banks in the recent past were not only the consequence of failures of credit risk management, they were also the consequence of failures of banks' operating management to effectively identify and quantify the accumulation of exposures to risk within the enterprise.

A key contributor to these events was 'model risk and measurement error' which is an operating or enterprise failure, not a credit risk management failure. Indeed, a primary focus of the Discussion Paper is the shortcomings and limitations of banks' internal models... an operational risk.

With this in mind we have presented our comments in the paragraphs that follow from the perspective of the whole enterprise and all the attendant risk types rather than just credit risk.

The Current State of Bank Regulation and Accounting

There is much written and spoken on the issue of complex and flawed regulatory regimes. For example, Haldane (2012)¹⁵ commented that due to escalating complexity "the Tower of Basel is at risk of over-fitting – and over-balancing" concluding that simpler, more judgment-based approaches to regulation should be considered. He was particularly critical of the role risk models play in modern bank supervision with reference to "startling degrees of complexity and an over-reliance on probably unreliable models.... With thousands of parameters calibrated from

¹⁴ See footnote 1, Paragraph 23

¹⁵ Haldane AG and Madouros V, *'The dog and the Frisbee'*, (August 2012), presented at the Federal Reserve Bank of Kansas City's 36th economic policy symposium, "The Changing Policy Landscape", Jackson Hole, Wyoming

short samples, these models are unlikely to be robust for many decades, perhaps centuries to come. It is close to impossible to tell whether results from them are prudent.”

Rowe (2010)¹⁶ aptly described the adverse role complexity plays in modern bank regulation, “... the painful financial and economic upheaval of the past three years (financial crisis) can be traced to unbridled complexity outrunning the ability of both public and private organisations to control it effectively... complexity might have worthy primary goals but breeds little understood dangers... I have reluctantly come to the conclusion that regulatory capital rules fall into this latter category”.

We also recognize that the accounting profession has not addressed the question of accounting for risk given that accounting standards¹⁷ are oriented towards fair values. The result is an accounting framework that is designed to provide a static measure of financial condition. This is of little value to regulators who must concern themselves with the true economic condition of financial institutions which requires consideration of the probability and severity of future losses that can occur in extreme but plausible operating and macroeconomic scenarios.

The Convergence of Accounting and Risk Systems

Our research has led us to the conclusion that a significant contributor to the complexity of the global financial system is the absence of convergence between accounting and risk systems. The Committee’s decision to adopt banks’ internal risk models as a basis for regulatory capital calibration resulted in banks calculating a capital requirement through the application of stochastic techniques that function independently of accounting principles¹⁸ and use inputs that are not necessarily derived from or reconciled to banks’ accounting records. Consequently, banks are required to maintain systems and data that correspond to two largely unconnected reporting regimes... IFRS/GAAP and Basel.

We are concerned that rather than address this lack of convergence, the Discussion Paper widens the gap between the two regimes through its proposed development of a “standard leverage measure and associated disclosure requirements which allow comparability across jurisdictions despite underlying differences in accounting standards”.¹⁹

In our judgment it is misguided to believe that an overly complex and flawed regulatory regime can be improved and made more secure by adding incrementally to it particularly

¹⁶ Rowe D, ‘*Regulators Double Down*’, (December 2010), Risk Magazine, <http://www.risk.net/risk-magazine/opinion/1895760/regulators-double>, accessed on 10th August 2013

¹⁷ For example, International Financial Reporting Standards (IFRS) or US Generally Accepted Accounting Principles (GAAP)

¹⁸ See footnote 17

¹⁹ See footnote 1, Paragraph 58

where additional rules proposed in the Discussion Paper set out to limit the negative or unintended consequences of earlier regulatory rules in a way that conflicts with generally accepted accounting standards.

It cannot be acceptable to regulated financial institutions that they must divert so much of their resources in the maintenance of multiple versions of the same information so that they are positioned to respond to inconsistent regulatory rules and accounting standards. It cannot be acceptable to users of the global financial system and those that invest in it to be presented with audited financial statements based on accounting standards that do not give recognition to all the risks inherent in the transactions financial institutions accept for processing. It cannot be acceptable to boards and senior executives of financial institutions to be presented with financial reports that reflect diverse versions of economic condition and capital driven by accountants' and risk managers' different perspectives of what constitutes exposure and how it should be reported. It cannot be acceptable to regulators that they are unable to observe the build-up of exposure to risk in the global financial system on a complete, consistent and timely basis.

Reengineering the Global Financial System

There comes a point when a system achieves a degree of complexity, permeated by a myriad of internal interdependencies, that it must be declared as no longer fit-for-purpose; a point when its operators can no longer reliably anticipate the consequences of system modifications that, from time-to-time, they are required to make. The dilemma is that any modification to the system can potentially trigger, in the best case, unintended consequences and, in the worst case, its total breakdown. We believe that the financial crisis provides indication that the global financial system has already achieved the latter condition. In such circumstances, the only option is to reengineer the system over time while providing a parallel path to support regulatory oversight until the target reengineered state is achieved.

Risk Data Aggregation and Risk Reporting

What will such a reengineered system look like? If it is to provide regulators with the framework through which effective supervisory oversight can be exercised then it will need to have, at its core, a simplified and replicable method of calculating exposure to risk that can be universally applied to sources of transactions that are reconcilable to accounting records.

It is precisely this aspect that has been the object of more than a decade's research by the authors of this document. Our aim was to design a blueprint for a reengineered global regulatory framework with a view to 'risk adjusting the financial system'.

In so doing due consideration was given to a most recent and highly relevant paper issued by the Committee²⁰ on risk data aggregation and risk reporting that sets out new requirements due for implementation in 2016 including:

1. Controls surrounding risk data should be as robust as those applicable to accounting data
2. Supervisors expect banks to consider accuracy requirements analogous to accounting materiality
3. Risk data should be reconciled with bank's sources, including accounting data where appropriate, to ensure that the risk data is accurate
4. The term 'risk data aggregation' means defining, gathering and processing risk data according to the bank's risk reporting requirements to enable the bank to measure its performance against its risk tolerance / appetite

Our proposed framework that addresses these requirements is termed 'Risk Accounting'. We believe it offers a foundation on which risk sensitivity, simplicity and comparability can be embedded in the regulatory framework. We find some endorsement of such techniques in the Discussion Paper through its reference to the confidence supervisors and investors place in risk-weights being a crucial element in the regulatory framework that is critical to its success.²¹ It follows that a regulatory and risk reporting framework built on risk-weights²² in which the intellect, experience and expertise of supervisors and others is embedded in the framework is worthy of consideration. We believe reengineering the framework will ultimately yield far greater benefits than pursuing the inherently backward looking approaches defined in Basel II that rely on quantitative modelling with its attendant complexity, model risks and data quality issues.

An overview of Risk Accounting is provided in appendix 2.

Summary

We respectfully submit our comments in this report and in the appendices that follow with the aim to inform the Committee that if the objectives of balancing risk sensitivity, simplicity and comparability within the regulatory framework are to be achieved, reengineering the

²⁰ Basel Committee on Banking Supervision, *'Principles for Effective Risk Data Aggregation and Risk Reporting'*, (January 2013)

²¹ See footnote 1, Paragraphs 30 & 31

²² For example, the Exposure Uncertainty Factors (EUFs) proposed in the Risk Accounting technique (see page 15 of Appendix 2 herein)

framework is not only necessary and viable, but most importantly, implementable within the Committee's proposed timetable for risk data aggregation (2016) and large exposure reporting (2019).

We are engaged in all aspects of these implementations and look to the Committee to provide its bully pulpit to advocate for our cause which we suggest should be its own. In this regard we believe the Risk Accounting technique described in appendix 2 of this paper meets the Committee's desire for risk sensitivity, simplicity and comparability within the regulatory framework applied to financial institutions. Its techniques should be developed in parallel with the current incremental approaches to the current risk regime suggested in the Discussion Paper. Lessons will be learned from each approach to evolve a more robust, less complex and more risk sensitive framework.

We hope we have demonstrated that the Committee's aims in this regard are eminently achievable through mechanisms and accounting techniques that align risk management with accounting standards and systems.

Introduction

In section 6 of the Discussion Paper the Committee solicited responses to five questions which we have provided below.

Question 1

Does the current framework, with its reliance on the risk-based capital at its core, appropriately balance the objectives set out in paragraph 29?

Our research leads us to the conclusion that the disclosure of an enterprise's financial condition and the concomitant determination of its capital adequacy must be a function of accounting rather than quantitative modelling. If accounting is to fulfil this core function, the current practice of basing accounting on fair values must be adapted in a way that accounting is based on the risk exposures inherent in approved transactions. The Risk Accounting technique described in appendix 2 achieves this by adding risk information to the existing management information that is attached to transactions upon their registration in accounting systems. The incremental risk information enables a calculation of risk-weighted transaction values that are accounted for using a new risk abstraction - the Risk Unit (RU). In this way a comprehensive risk management system is created that is tied to the financials of the enterprise.

Risk Accounting aligned with management accounting can produce a system of integrated risk and management reporting, for example, by group, organisation unit, product, customer and geography which, in turn, enables the risk appetite setting process to become an integral part of the enterprise's business financial planning and budgeting cycle.

Question 2

Are there other objectives that should be considered in reviewing the international capital adequacy framework?

Yes... the convergence of risk and accounting systems as described above. Further, a capital adequacy framework needs to be more than just a method of determining a measure by which firms count down to failure; it should be the mechanism that proactively prevents it. Consequently, a further objective to be considered is the creation of a capital adequacy framework that incentivises effective risk mitigation by embedding causal-linked dynamic quantifications of exposure to risk into the capital adequacy calculations which is what Risk Accounting is designed to do.

Question 3

To what extent does the current capital framework strike the right balance between simplicity, comparability and risk sensitivity, given the costs and benefits that greater risk sensitivity brings?

As discussed in the body of this report²³ we believe a successful outcome to the Committee's quest for risk sensitivity, simplicity and comparability through modifying or adding incrementally to an already overly complex regulatory framework is not achievable. We believe the Committee's current approach that permits banks to use their own internal models as a basis for capital calibration requires fundamental rethinking.

Question 4

Which of the potential ideas outlined in Section 5 offer the greatest potential benefit in terms of improving the balance between the simplicity, comparability and risk sensitivity of the capital adequacy framework?

As stated in our response to question 3, the current framework requires fundamental rethinking. Ideas that involve incremental requirements, e.g. metrics, disclosures, leverage ratios, leverage buffers, tests against hypothetical portfolios etc., applied to an already overly complex framework can only serve, in our view, to further increase complexity. We do not believe this would be in the interests of investors, regulators, customers and other stakeholders or the banks that would be required to construct systems and data sources to satisfy such incremental requirements.

Question 5

Are there other ideas and approaches that the Committee should consider?

As stated above, we recommend the Committee pursues accounting based solutions such as the Risk Accounting technique we describe in appendix 2. It is worthy of note that such techniques are not dissimilar to the changes banks made to their accounting systems in the 1960s and 1970s when automating general ledgers and sub-ledgers including the implementation of cost accounting and performance management systems. This was followed by the changes effected in the 1980s and early 1990s in response to the transformation of legal entity, sovereign based business structures into global lines of business.

At these times, financial controllers learned how to tag transactions with coding relating to cost centres, products, customers, market segments, transfer pricing, unit costs etc. that enabled the reporting of cross-enterprise performance by a process that is now dubbed

²³ See page 4 'Introduction'

'management accounting'. We are now advocating that banks undertake the next evolutionary phase and advance their accounting systems from management accounting to Risk Accounting. This can be achieved through the tagging of transactions with risk coding that will enable the calculation of risk-weighted transactions that can then be accounted for in a system of Risk Accounting.

Risk Accounting - Overview

Risk Accounting is a next generation Enterprise Risk Management system²⁴. It addresses the weaknesses and limitations in banks' risk management and accounting systems that failed to provide forewarning of life-threatening accumulations of exposure to risk that formed the backdrop to the financial crisis.

Risk Accounting introduces a simple, consistent and auditable method of measuring and reporting enterprise risks as an extension of management accounting. It comprises three categories of tables and templates that assign standardised risk-weights to individual transactions according to:

1. The risk characteristics of the relevant products
2. The amounts accepted for processing in accordance with accounting records
3. The risk mitigation effectiveness of the operating environment that handles them

The risk-weights tagged to each transaction are used in a calculation of its exposure to risk. In this way, Risk Accounting accounts for the risk exposures inherent in transactions and produces risk reports that can be aggregated by risk type (credit, market, liquidity and operational) and by organisation, geography, product and customer.

Risk Accounting's tables and templates are built from the ground up incorporating the expert knowledge of line and risk management which becomes embedded in the very fabric of the risk measurement method. The result is risk metrics that are both credible and actionable allowing a risk culture to naturally evolve with continual risk mitigation as the outcome.

Risk Accounting's standard unit of risk measurement – the Risk Unit (RU) – blends quantitative and qualitative risk elements into a single additive metric that can be used in the setting and monitoring of risk appetite.

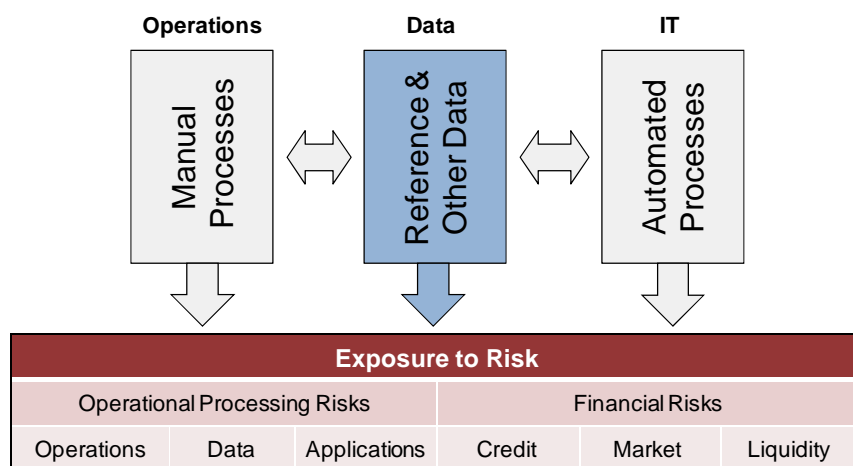
Real-time management dashboards facilitate the management of risks by exception – primarily risk appetite excesses – enabling analysis of the causes by drilling to the relevant products and related processes.

How Exposure to Risk is Created

An operating environment can be deconstructed into the simple model shown on the next page represented by three key operational pillars – people, data, and systems. If the interaction of

²⁴ See footnote 2

the three operational pillars (manual process, automated process, and data) is flawless a theoretical risk-free operating environment is the result. Thus, the benchmark for a risk-free operating environment can be represented as 100 per cent straight-through-processing (STP) with totally reliable and secure information technology and flawless data.



The Three Pillars of an Operating Environment

This benchmark also represents a transaction processing environment that is operating at or close to optimal efficiency. Consequently, the correlation between risk mitigation effectiveness and operating efficiency is either '1' or close to '1'.

It follows that exposure to risk, and the loss of operating efficiency, are the consequence of the failed and/or insecure interaction of manual processes and automated processes with data relative to the processing of transactions and the management of financial risks. The risk metrics produced by Risk Accounting are aligned to this dynamic.

The Risk Unit (RU) – Three Core Metrics

The risk quantification method involves the production of three core metrics using the new common unit of exposure measurement unique to Risk Accounting... the 'Risk Unit' (RU):

Inherent Risk – is the risk-weighted size of a transaction expressed in RUs that represents the transaction's maximum potential for loss

Risk Mitigation Index (RMI) – is a dynamic measure on a scale of 1 to 100, where 100 is best practice, that represents, in percentage terms, the portion of maximum potential loss that is mitigated through the effective management and control of the firm's operating environment

Residual Risk – is expressed in RUs and represents the probability of loss being the portion of Inherent Risk not covered by effective risk mitigation as represented by the RMI

The above core metrics are calculated at the transaction level relative to the risk types that are triggered by a transaction and can be one or a combination of operational, credit, market and liquidity risks. The resulting metrics can be aggregated, for example, by organization, product, customer, geography and risk type.

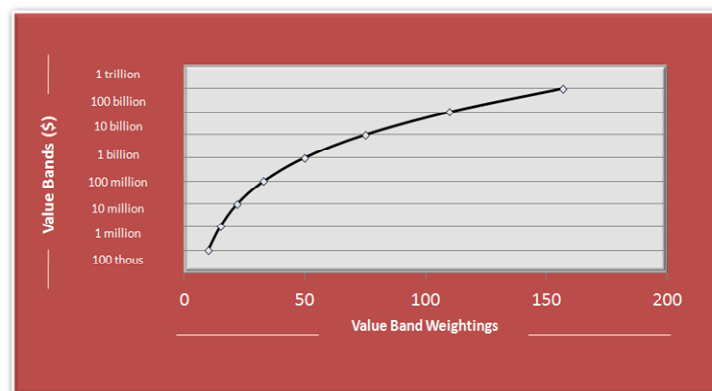
Preventing Unexpected Losses

The amount of risk inherent in a transaction accepted for processing relates to its potential to cause unexpected losses. An unexpected loss can be prevented through a firm's effective monitoring and management of the associated risks, which is precisely what Risk Accounting is designed to facilitate.

An unexpected loss occurs in circumstances where a firm's management believes its risk management processes are effective but, in reality, they are not due to failures either in their design or application. It follows that an unexpected loss cannot result from a firm intentionally taking on a risk for a projected return if the decision to accept such risk is a consequence of the application of effective risk management processes represented by a high Risk Mitigation Index (RMI) and within approved risk appetite parameters.

The Value Table

The Value Table comprises value bands and associated risk-weights (Value Band Weightings). The resulting logarithmic curve shown in the table below depicts the relationship between transaction values and risk, i.e. the marginal increase in risk reduces as transaction (processing) values increase. This is due to the natural increase in the sophistication of processing that occurs when transaction throughput increases due, primarily, to enhanced automation.



Value Band Weightings

These value bands adjust dynamically to the product volumes and values being processed and are scaled accordingly.

Financial Risks and Exposure Uncertainty Factors (EUFs)

Risk Accounting introduces a new concept in risk quantification... the Exposure Uncertainty Factor (EUF). The EUFs presented in the table below assume that there is a positive correlation between a product's potential to cause unexpected losses and the degree of exposure uncertainty that exists, for example, upon the assumed occurrence of a credit default (credit risk) or if a trading position were to be unwound on any given day (market risk).

Credit Type	Form of Security / Type of Instrument	EUF
Commercial	Casual Overdraft	2
Commercial	Credit Card	2
Commercial	Unsecured	2
Commercial	Cash	4
Commercial	Cash Like Instruments (Margins, Liquid AAA Collateral)	5
Commercial	Trade Receivables	8
Commercial	Inventory	12
Commercial	Equipment	12
Commercial	Instruments Subject to Mark-to-Market, Mark-to-Model	12
Commercial	Autos	12
Commercial	Personal Guarantee	14
Commercial	Project Financing	16
Commercial	Commercial Real Estate	18
Counterparty	Forward Foreign Exchange	4
Counterparty	Interest Rate Swaps	8
Counterparty	Options	8
Counterparty	Credit Default Swap	14
Counterparty	Collateralized Debt Obligations and Asset Backed Securities	18
Retail	Casual Overdraft	2
Retail	Credit Card	2
Retail	Unsecured	2
Retail	Autos	12
Retail	Personal Guarantee	14
Retail	Residential Property	16

Credit Risk – Exposure Uncertainty Factors (EUFs)

Research has demonstrated that the EUF offers a more reliable basis on which to calculate forward looking exposures to risk than the more backward looking risk models – such as Value-at-Risk (VaR) – that rely on historic loss data to predict the probability and severity of future unexpected losses.

For example, exposure uncertainty relative to credit risk is a function of a credit's underlying collateral by reference to its value retention properties and degree of anticipated difficulty in arriving at a liquidation price upon disposal.

Credits secured by collateral with a high EUF carry correspondingly high inherent credit risk. This is due to their exposing a firm to greater probability of unexpected losses because credits that are deemed secured may become partially or wholly unsecured due to an inherent susceptibility to changes in the value and/or availability of the collateral and/or difficulty in liquidating the assets.

Conversely, an unsecured loan has a low EUF and a correspondingly low inherent credit risk as the true exposure at default can be readily determined.

Transaction Processing Risks

Upon their acceptance for processing, transactions follow a predetermined path through the operating environment. This path is represented by operations units that perform certain activities relative to the transactions, for example, data capture, release of values (payments), reconciliation, independent checking, valuation (mark-to-market), imaging, placing/removing into/from safekeeping and many more.

Activity Type	Activity Description and Examples	Weighting
General Administration	General administration – Imaging – Filing – General support	1
Nostro Investigation	Investigation, aging and escalation of unmatched items	6
Payments / Settlements	Release value items (including standard settlement instruction and standing order / direct debit maintenance) to: – Guaranteed counterparties – Intercompany and intracompany – Guaranteed settlement (e.g. central exchanges / Continuous Link Settlement) – Delivery versus payment agreements	2
	Release value items (including standard settlement instruction and standing order / direct debit maintenance) to: – To financial market counterparties – Banks and other financial institutions	5
	Release value items (including standard settlement instruction and standing order / direct debit maintenance) – Other parties – Non-financial market counterparties – Third parties	10

Operational Activity Catalogue (Extract)

An extract from the operational activity catalogue is shown above. Risk Accounting uses these risk weights in the calculation of inherent risk RUs relative to individual transactions.

Best Practice Scoring Templates (BPSTs)

BPSTs are used to calculate the Risk Mitigation Index (RMI) which is a measure of the risk mitigation effectiveness of the operating environment.

Credit Assessment & Approval	
Relates to assessment and approval processes applied in credit-granting decisions	
Best Practice Score = 100 Points	
Best Practice Statements	Deductible Points
1. The firm's approved credit risk management procedures set out the credit-granting processes and documentation standards that must be complied with when assessing and approving credits	100
2. The firm's approved credit risk policies set out credit-granting criteria encompassing the individuals and organisations that are eligible for credit (exclusive and inclusive), the terms and conditions and the amounts and types of credit that can be transacted. This is followed for every credit approval	100
3. While assessing credit proposals for an obligor, complete and accurate aggregate exposures of related parties are available for evaluating the overall risks including concentration risks	70
4. Specialist credit analysts, who are assigned to a business line but report independently of the management of business origination personnel (sales), analyze and approve credits and have the authority to amend the internal credit risk ratings (downgrade or upgrade) assigned by business origination personnel (sales)	60
5. The firm relies on its own independent credit assessment and analysis of each obligor even if third party credit assessments and/or ratings are available	50
6. Credits outside of business 'strike zone' require approval by an independent credit review function	40
7. Each obligor is assigned an internal credit risk rating by personnel who are sufficiently knowledgeable of the obligor's circumstances to reliably conclude on repute and creditworthiness and are suitably expert ³ in credit analysis and assessment	40
8. Personnel who have been assigned lending authority can approve credits up to predetermined limits based on a combination of pre-defined parameters including internal credit risk rating and the amount of credit being granted	40
9. Override of system generated internal risk ratings is done only by credit personnel with authorities for overrides; reasons for override are documented as a part of the credit approval	40
10. In addition to credit approvals, for credits where the <i>Risk Adjusted Return on Capital (RAROC)</i> is lower than the hurdle rate as per pricing policy, separate pricing approvals is required by personnel independent of the business origination personnel (sales)	20
11. The organization has standardized templates for credit analysis (including financial analysis) to minimize variance in credit assessment process	20
12. As a part of credit approval process all obligors are subject to Know Your Customer (KYC) background checks as required by regulations applicable to the organization	20
13. Credit approval workflow automatically ensures that the proposal is routed to the correct level of credit personnel for approval. Exceptions are immediately triggered for action	10

Sample Credit Risk Best Practice Scoring Template

A primary input to BPSTs are the 'effective principles' and 'sound practices' papers published from time-to-time by the Basel Committee on Banking Supervision.

BPSTs have been developed for each risk type and comprise generic and risk specific templates. For example:

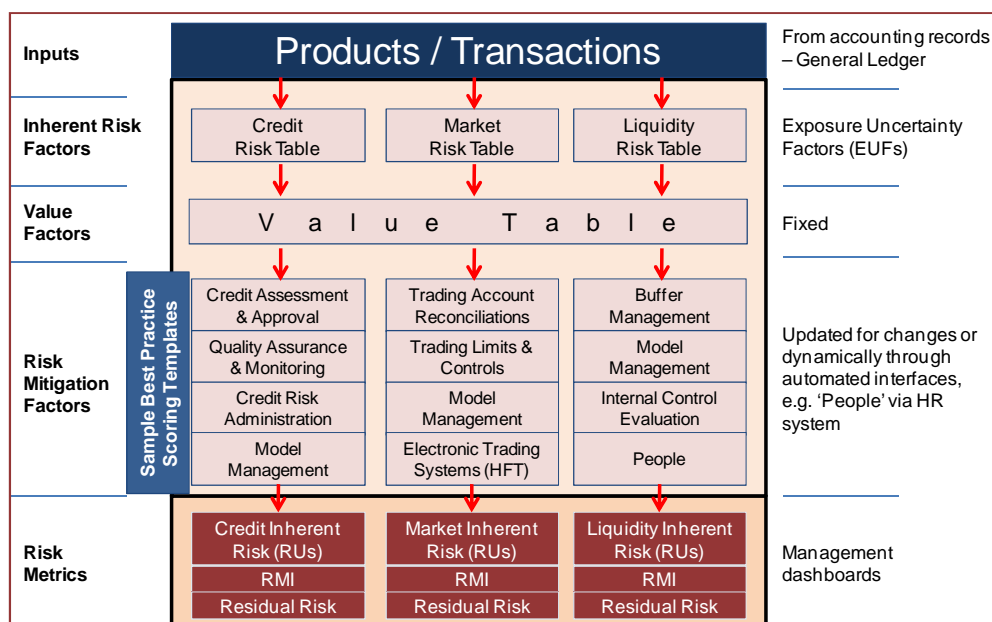
- Generic BPSTs include People, Controls, Execution and Business Recovery
- Risk specific BPSTs include, for credit risk, Credit Assessment & Approval, Credit Quality Assurance & Monitoring, Credit Risk Administration and Credit Risk Model Management
- Operational (transaction processing) risk comprises Manual Processing (Operations), Automated Processing (IT) and Data Management.

On the previous page is a sample BPST for Credit Assessment & Approval. The 'deductible points' represent the relative degree of reliance that management places on the respective best practice when designing and applying credit risk management processes.

In deriving a best practice score for 'Credit Assessment & Approval' relative to a product, scoring begins with the maximum '100' and for each best practice that is not complied with the respective 'deductible points' is deducted cumulatively from the maximum '100'. A resulting score can be zero but not less than zero.

Risk Accounting - Process Overview

The diagram below relative to financial risks (transaction processing risks are not shown) shows the flow of transaction data from the general ledger through the various tables and templates that comprise the Risk Accounting method and system.



Risk Accounting Process Flow – Financial Risks

Reporting

Risk accounting is designed to identify and quantify external exposures to risk from two perspectives:

1. The amount of new exposures to risk created during a particular day ('Daily New Exposures')
2. The amount of risk inherent in risk positions at a given point in time ('Risk Positions').

The transactions that comprise 'Daily New Exposures' and 'Risk Positions' are derived from, and are traceable to the firm's general ledger and its associated product sub-ledgers and applications thereby satisfying the Committee's requirements that risk data should be reconciled to accounting data²⁵.

The amount of 'Daily New Exposures' relative to credit risk is determined for each product by reference to the total amount of loans disbursed, guarantees approved, etc. Where credit risk is not the result of a loan disbursement, e.g. casual overdrafts, credit card outstandings etc., the net day-to-day increase in total outstandings of the respective portfolio is considered to be the new daily credit exposures.

For market risk 'Daily New Exposures' is the aggregate trades (buys and sells) and related hedges relative to each trading position on the principle that abnormally high trading volume is an indicator of higher risk and such activities should be reflected in management reports albeit adjusted by the applicable Exposure Uncertainty Factor (EUF) discussed above. Aggregate values are also applied to the products and related hedges that comprise a market risk 'Risk Position'. A high EUF is an indication of the probability that these products and associated hedges, while validly combined and netted in a single trading position, may not provide the intended risk management effect if liquidated in stress conditions.

Transaction size is another factor in the calculation of RUs inherent in credit and market risk as a transaction's size (value) and the amount of unexpected loss it can potentially create are positively correlated.

In the case of market risk and counterparty credit risk with respect to derivatives, Risk Accounting considers that the notional values are representative of transaction size as they provide the basis on which future cash flows, mark-to-market and mark-to-model calculations, collateral deposits and related gains and losses are determined. When calculating the exposure in RUs inherent in 'Risk Positions' for both credit and market risk, Risk Accounting uses fair values or market values in accordance with accounting principles as these more accurately reflect the outstanding amounts.

²⁵ See footnote 20

A Better Method for Regulators and Investors

The product risk report shown on the following page provides an example of an output of Risk Accounting relative to the inherent and residual risks of a financial product; in this case, a Collateralized Debt Obligation (CDO). The interpretation placed on this example is that the inherent risk (4,650 RUs) is representative of the maximum potential for loss inherent in the CDOs transacted on a particular day and the residual risk (2,166 RUs) is representative of the respective probability of loss.

Over time, Risk Accounting outputs will be correlated with expected and actual losses thereby imparting a monetary value to the RU. In the interim, benchmarking RUs across financial institutions that are adapting to the Risk Accounting method will provide relative standing of the RUs' value to improving best practices and thereby mitigate risks.

Inasmuch as the Risk Accounting method quantifies inherent and residual risk in RUs relative to each product transacted by a financial firm, it follows that such information can be validly applied in the calibration of regulatory capital requirements. The expectation is for the RU metric, over time, to assume a statistically derived monetary value considering that the RU incorporates all of the principal risk types (credit, market, operational and liquidity).

For this potential to be realized it is acknowledged that the tables and templates that constitute the Risk Accounting method and system will need to be standardized across the industry, not unlike the prescriptive accounting standards disseminated as International Financial Reporting Standards (IFRS) that are designed to ensure, amongst other aspects, the comparability of firms' audited financial statements.

The benefits are, however, potentially significant for regulators as capital requirements based on RUs will be the result of explicit measurements of exposure to risk following auditable processes. Investors and other stakeholders will similarly derive benefit as they will be able to directly compare the level of risk accepted by a firm both absolutely and in comparison to others.

A final benefit is that the process of implementation creates reengineering and cost reduction opportunities, metricized in RUs for risk reduction and in monetary values for profit performance enhancement. It has been our experience in our pilots that the one-time cost for implementation is offset by the cost savings from reengineering, and that the annual savings then persist, making Risk Accounting a multi-year bottom line benefit on a ROI basis.

Collateralized Debt Obligations (CDOs)	Inherent Risk (Risk Units)	Risk Mitigation Index (RMI)	Residual Risk (Risk Units)
Processing Risks			
Transaction Processing Risk			
Product & Service Pricing	1,350	63.5	493
Deal Structuring	1,350	55.2	605
Order Management	1,350	68.2	429
Pre-Trade Validation	1,350	62.3	509
Quote Management	1,350	73.4	359
Trade Execution & Capture	1,350	44.9	744
Cash Management	1,350	52.3	644
Trade Confirmation & Matching*	1,350	60.0	540
Position Control & Amendments	1,350	60.2	537
Transaction Reporting	1,350	63.2	497
Credit Limit Monitoring	1,350	45.0	743
Trading Limit Monitoring	1,350	62.4	508
Trade Settlements	1,350	63.4	494
Nostro Reconciliation	1,350	72.8	367
Trading Account Reconciliations	1,350	66.7	450
G/L Proofs & Substantiation	1,350	73.3	360
Management Reporting	1,350	64.2	483
Regulatory & External Reporting	1,350	64.2	483
Control Totals	24,300	62.0	9,245
Transaction Processing Risk	1,350	62.0	514
Data Quality			
Client & Counterparty	1,350	79.2	281
Market Data	1,350	52.9	636
Products & Instruments	1,350	68.2	429
Corporate Events	1,350	43.3	765
Control Totals	5,400	60.9	2,111
Data Quality	1,350	60.9	528
Business Systems (IT) Risk			
Integrated Trading System	1,350	78.9	285
Funds Transfer System	1,350	65.4	467
Global Nostros System	1,350	65.0	473
Global Ledger System	1,350	82.3	239
Funding & Liquidity System	1,350	69.4	413
Control Totals	6,750	72.2	1,877
Business Systems (IT) Risk	1,350	72.2	375
Control Totals	36,450	63.7	13,233
Total Processing Risks	1,350	63.7	490
Financial Risks			
Credit Risk Management	1,350	52.0	648
Market Risk Management	1,350	43.9	758
Liquidity Risk Management	600	55.0	270
Total Financial Risks	3,300	49.2	1,676
Total Product Risks	4,650	53.4	2,166

Sample Risk Accounting Report – Product Risk

Introduction

In annex 1 of the Discussion Paper the Committee presents potential indicators that could be used as a general guidance when assessing the simplicity, comparability and risk sensitivity of policy measures. In the tables below we have assessed Risk Accounting relative to these indicators.

A) Potential indicators for assessing simplicity

Simplicity Indicators	Indicator Met?	Comments
(a) the proposal results in no more than a few calculation approaches, the differences in which are significant enough to justify their use	Yes	The calculation of Risk Units (inherent and residual risks) and the Risk Mitigation Indexes (RMIs) involves simple mathematics that is applied consistently across the enterprise.
(b) inputs used in any calculation process are simple and observable; the number of (non-observable) parameters required to be estimated is not large	Yes	The inputs to Risk Accounting are the transactions recorded in firms' accounting records. Consequently, there are no non-observable parameter inputs.
(c) incorporation of each of the parameters in the proposal is supported by adequate quantitative analysis that clearly indicates its meaningful contribution to risk sensitivity	Yes	Risk sensitivity is achieved through embedding the intellect, knowledge and experience of supervisors and practitioners into the risk-weights used in Risk Accounting's risk quantification method. Quantitative analysis is not used.
(d) the proposal does not allow banks to make too many assumptions in the modelling process, and sensitivity of the results to the assumptions is low	Yes	Regulators can set the risk-weights that must be applied by regulated firms which is a practice already widely adopted in the existing regulatory framework.
(e) the level of difficulty in understanding the details of the proposal, the related capital calculation process and its limitations is low (for both banks and supervisors)	Yes	Risk Accounting is an essentially simple risk exposure quantification method that can be easily understood by both regulated firms and supervisors.

(f) implementation costs (both for banks and supervisors) including cost of collection of data and software and analytical support required are not onerous, and data are easily available	Yes	Risk Accounting is an extension of management accounting and, consequently, its implementation leverages already existing accounting infrastructures. Further, it creates reengineering and cost reduction opportunities that are metricised in Risk Units for risk reduction and in monetary values for profit performance enhancement. In this way, the one-time cost of implementation is offset by cost savings from reengineering; the annual savings then persist, making Risk Accounting a multi-year bottom line benefit on an ROI basis.
(g) supervisors can readily enforce the proposed policy	Yes	The templates used in Risk Accounting can be prescribed by regulators. Their application results in a measurement metric (Risk Units) as opposed to an assessment metric causing them to be auditable.
(h) the proposal is easy to communicate to stakeholders in a consistent manner	Yes	An overview of the Risk Accounting method is provided in appendix 2 and in published research working papers. ²⁶ These may be used to judge whether it may be communicated to stakeholders in a consistent manner.
(i) the proposal is clearly expressed in straightforward, precise and unambiguous language	Yes	See comment to (Ah) above.

B) Potential indicators for assessing comparability

Comparability Indicators	Indicator Met?	Comments
(a) the proposal results in similar requirements for similar risks, and distinguishes between materially different	Yes	The consistent application of Risk Accounting's tables and templates ensures that risk quantifications relative to all risk types are comparable within and between

²⁶ See footnote 2

levels of risk between banks and over time		firms.
(b) the proposal can be adopted among Committee member jurisdictions in a consistent manner	Yes	If different jurisdictions adopt the same tables and templates the outputs from Risk Accounting will be universally comparable.
(c) the proposal minimises the need for national discretion	Yes	See comment to (Bb) above
(d) the proposal requires appropriate disclosures to support understanding of the policy outcomes	Yes	The expectation is that firms will produce financial accounts in their base currency and risk accounts in Risk Units.

C) Potential indicators for assessing risk sensitivity

Risk Sensitivity Indicators	Indicator Met?	Comments
(a) the proposal accounts for different types and sources of risk	Yes	See comment to (Ba) above.
(b) the proposal differentiates in its response to different types and levels of risk	Yes	See comment to (Ba) above.
(c) the risk of under-capitalisation is low	Yes	Risk Accounting provides for the dynamic quantification of exposure to risk (Residual RUs) which represents probability of loss. Over time, Risk Accounting outputs in RUs will be correlated with actual losses thereby enabling the refining of Risk Accounting's risk exposure quantification method and ultimately imparting a monetary value to the RU. Capital calibrated on the basis of monetarily valued RUs is potentially more reliable than the stochastic

		techniques currently in use through the Basel capital accords. ²⁷
(d) the risk of regulatory arbitrage is low	Yes	See comment to (Ba) above.
(e) model risk is low	Yes	See comment to (Cc) above

²⁷ For further discussion see 'A Better Method for Regulators and Investors' page 20