

# Sound Practices in Credit Portfolio Management



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## ***About the IACPM***

The IACPM is an industry association established in 2001 to further the practice of credit exposure management by providing an active forum for its member institutions to exchange ideas on topics of common interest.

Membership in the IACPM is open to all financial institutions that manage portfolios of corporate loans, bonds or similar credit sensitive financial instruments.

The Association represents its members before legislative and administrative bodies in the US and internationally, holds annual conferences and regional meetings, conducts research on the credit portfolio management field, and works with other organizations on issues of mutual interest relating to the measurement and management of portfolio risk.

Most of the world's major financial institutions are members of the IACPM. These institutions include large commercial wholesale banks, investment banks and insurance companies, as well as a number of asset managers.

Measuring and managing credit risk is assuming ever greater importance, and credit portfolio management – across loan, bond and credit derivative markets – is increasingly complex.

As active participants in each of these markets, credit portfolio managers today are frequently facing a variety of issues for the first time. These include the challenges of structuring transactions that involve all three markets, as well as the challenges of managing less liquid or illiquid risks.

The IACPM recognizes the unique and evolving role of credit portfolio managers in today's financial markets, and offers an excellent forum through which these issues can be identified, understood and addressed.

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## ***Foreword***

It is with pleasure that the International Association of Credit Portfolio Managers presents *Sound Practices in Credit Portfolio Management*. We direct this list of sound practices to those senior executives responsible for their firm's risk management and financial integrity and to those who are originators, underwriters, and managers of credit exposures worldwide.

In establishing this set of practices, we recognize that credit portfolio management (CPM) evolves at its own pace and in its own way at each institution. So while we believe these practices to be *sound*, we do not mean to imply that institutions not employing them are in any way *unsound*. Nor is this list of practices intended as a checklist that, once completed, will ensure success.

The practices and principles laid out in this document are not designed to be prescriptive, but instead are intended as a framework against which an organization can benchmark its own activities and measure the development of its portfolio management efforts.

The sound practices that make up this document are grouped under descriptive headings with the following themes:

- o Define the portfolio to be managed
- o Identify the role and mandate of the CPM function
- o Standardize risk measures and models
- o Deal with data issues
- o Understand economic value versus accounting value
- o Set limits and manage concentrations
- o Stress test the portfolio
- o Align accounting conventions with portfolio management practices
- o Rebalance the portfolio to achieve strategic objectives
- o Establish objectives and measure performance
- o Be transparent in disclosures

Each sound practice is followed by a brief comment providing some context for it. Over time, the IACPM intends to provide detailed discussion papers for some of these topics. Please check for updates on the IACPM Web site at [www.iacpm.org](http://www.iacpm.org).

To those who are responsible for implementing a practice of credit portfolio management, the task may seem daunting. This set of practices and principles frames issues that, once addressed, will strengthen the effectiveness and success of your efforts.

The practices and principles described here have the unanimous endorsement of the IACPM board. They are not intended to highlight a “first in class” business model but only the practices from which each institution can learn and experiment. We do not have all the practical answers. This is simply a start. Take these practices and incorporate what is useful to you. Implement them in a manner and within a timetable suitable for your institution. The path to successful credit portfolio management is not singular.

Experience suggests that attempts to establish a portfolio management culture in an organization follow a typical sequence of reactions—from skepticism to denial and, ultimately, as the business case is made, to acceptance. Allow your colleagues to move through these stages at an appropriate pace. Change will not happen overnight. There will be setbacks, but persevere in your efforts. Most practitioners agree that the key to success is to establish your senior management sponsor early, move on multiple fronts at one time, and be patient.

We are confident this document will benefit all who participate in and supervise credit portfolio management activities in our global financial markets.

Board of Directors

International Association of Credit Portfolio Managers

November 2005



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# SOUND PRACTICES IN CREDIT PORTFOLIO MANAGEMENT

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# SOUND PRACTICES

## DEFINE THE PORTFOLIO TO BE MANAGED

1 An institution should manage all credit risk generated through its business activities.

2 Portfolios should be aggregated on the basis of consistent criteria.

3 All credit risk of an obligor should be aggregated.

## IDENTIFY THE ROLE AND MANDATE OF THE CPM FUNCTION

4 Senior management must issue a clear mandate to credit portfolio management to manage credit risk across the organization.

5 When establishing the credit portfolio management function, organizational roles and responsibilities should be clearly documented, including the relationship between credit origination, credit approval, and portfolio management.

6 The credit portfolio management function should be staffed by a combination of individuals with the following core competencies: fundamental credit experience, quantitative analytics, and market/credit trading experience.

## STANDARDIZE RISK MEASURES AND MODELS

7 The institution should define a risk-based economic valuation framework that permits it to assess and report its credit business.

8 The institution should compute a value distribution for its credit portfolio that captures deviations in economic value from the expected.

9 The institution's risk measure should have a level of granularity sufficient to identify major risk concentrations.

10 The institution should have a formal model-validation process.

## DEAL WITH DATA ISSUES

**11** Comprehensive position data should be collected and stored on a frequency consistent with the ability to manage the position.

**12** Internal data on credit losses should be collected and stored.

**13** The institution should be committed to data integrity, and clear responsibility for the integrity of data elements should be established.

**14** The institution should establish a master set of definitions and mappings.

**15** The institution should be able to reconcile its credit portfolio management data to the institution's books and records.

## UNDERSTAND ECONOMIC VALUE VERSUS ACCOUNTING VALUE

**16** Credit assets should be marked to market (or model) for the purpose of assessing economic value.

**17** The difference between the origination value and the economic value (market price) of a credit asset must be measured and taken into account in evaluating the profitability of customer relationships.

## SET LIMITS AND MANAGE CONCENTRATIONS

**18** Institutions should set limits that address concentrations and correlations within the portfolio.

**19** Traditional notional-based limits systems should be supplemented by limits systems that use risk-based measures.

**20** Proper governance around the limits system should be in place, and limits should be set and exceptions approved by a group other than the group whose mandate it is to manage the portfolio.

## STRESS TEST THE PORTFOLIO

21

The institution should have a “top down” stress-testing process in place to analyze the impact of extreme economic events on the credit risk of the overall credit portfolio.

22

The institution should supplement the “top down” approach with a “bottom up” stress-testing process to measure the impact of adverse events on obligors, or sets of obligors, with significant exposures in the credit portfolio.

## ALIGN ACCOUNTING CONVENTIONS WITH PORTFOLIO MANAGEMENT PRACTICES

23

Options available in official accounting rules should be:

- Used to reveal the true economics of positions.
- Applied in the context of defined risk management policies and strategies.

## REBALANCE THE PORTFOLIO TO ACHIEVE STRATEGIC OBJECTIVES

24

The mark-to-market book used for active portfolio management should be subject to appropriate market risk limits, and its P&L should be maintained and monitored daily.

25

Execution of portfolio-rebalancing activities should be centralized within a specialized group.

26

Credit portfolio management’s execution function should be independent of the institution’s own trading areas and have its own execution capability.

## ESTABLISH OBJECTIVES AND MEASURE PERFORMANCE

**27** The portfolio management function should have clearly defined performance measurement targets.

**28** Senior management should agree on performance measurement targets to ensure consistency with overall institutional objectives.

**29** Performance measurement targets should be consistent with the mandate of the portfolio management function.

## BE TRANSPARENT IN DISCLOSURES

**30** The institution should disclose:

- The mandate of its credit portfolio management function.
- Summary credit portfolio data.
- The products and structures used to manage the portfolio.
- The results achieved by its portfolio management activities.

## ***Preface***

During the thirteen months spent defining the sound practices, the Working Group came to realize that the phrase “credit portfolio management” did not always mean the same thing to everyone. Accordingly, the group members decided to examine the meaning of each word in the phrase as well as the relationship between credit portfolio management and related activities within the institution.

### **“Credit”**

Had these sound practices been produced only a few years ago, the word “loan” likely would have appeared instead of “credit.” Most, if not all, of the practices discussed in this document have their roots in practices developed around loan portfolios in the past decade.

However, it is now widely recognized that the practices have value for credit positions other than loans (e.g., bonds, collateralized debt obligations, counterparty credit risk) and for holders of credit positions other than banks (e.g., insurance companies, asset managers, hedge funds).

### **“Portfolio”**

Particularly in the case of loans, traditional practice had been to consider credit assets one at a time, much the same way in which investors in the 1960s and earlier had employed a “picking the winners” strategy in selecting equities. While the holders of credit realized that the values of credit positions are correlated, the explicit recognition of that correlation was limited to ad hoc measures like single-obligor and industry concentrations.

Use of the term “portfolio” conveys that correlation of credit positions has been *explicitly* incorporated and is a central feature of the practice. Correlation is implemented in analytic tools referred to as “credit portfolio models” or “credit capital models.”

## **“Management”**

While practice is rapidly converging on the meaning of “credit portfolio,” the range of practice with respect to the “management” of the credit portfolio remains wide.

The Working Group’s discussions highlighted the range of activities included under the “management” heading. Among those activities are 1) measuring and monitoring the exposures and risks contained in the portfolio; 2) identifying the portfolio that would be optimal in the context of the institution’s objectives; 3) on-boarding credit positions; and 4) off-loading credit positions or exposures.

The Working Group’s discussions also highlighted the fact that management activities occur at different times. Some management occurs when the portfolio is being assembled, some through the life of the credit position, and still more when a credit event occurs or an exposure matures.

Moreover, the Working Group noted that the approach taken by some institutions could be characterized as “passive”—involved only with measuring and monitoring or with reducing risk. In contrast, the approach taken by others could be described as “active”—explicitly attempting to maximize the risk-adjusted-return-to-economic-capital (RAROC) or shareholder value added (SVA).

## **Related Activities**

Credit portfolio management can be viewed as the intertwining of three strands of financial thought or practice:

- **Portfolio Management:** In the 1970s, institutional investors realized that, by explicitly incorporating the correlations of asset returns, they could increase expected returns without increasing risk. Normally referred to as Modern Portfolio Theory, this approach to investment has come to dominate practice. Instead of trying to “pick winners,” the focus of investors has become the construction of “efficient portfolios”—portfolios of assets that simultaneously maximize expected returns and minimize risk.

- **Market Risk Management:** In the late 1980s and early 1990s, financial institutions and their supervisors recognized the need for summary measures of interest rate risk, foreign exchange rate risk, equity price risk, and commodity price risk contained in portfolios of assets. Value-at-risk (VaR)—a measure of the maximum amount an institution would be expected to lose given a specified confidence level during a specified trading period—emerged as the generally accepted measure.
- **Financial Engineering:** The use of financial derivatives to modify an organization’s risk profile became increasingly common in the 1980s and early 1990s.

In the same way that an investor would want to hold an “efficient portfolio” of equities, the holder of a credit portfolio would want that portfolio to be “efficient”—i.e., simultaneously maximizing expected return and minimizing risk. To accomplish this, the practice of credit portfolio management embraced the importance of correlation (which had first been recognized for portfolios of equities).

In order to minimize risk, it is first necessary to measure it. The practice of credit portfolio management benefited greatly from the work done in market risk management by adapting many of the market risk management tools and techniques and applying them to portfolios of credit positions.

Financial engineering comes into play when the institution transforms its current credit portfolio into the one it desires to hold. The derivative instruments (forwards, futures, swaps, and options) originally developed to transfer interest rate risk, foreign exchange rate risk, commodity price risk, and equity price risk have evolved into instruments that can transfer credit risk. Most notable among these are credit default swaps and collateralized debt obligations.

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# DEFINE THE PORTFOLIO TO BE MANAGED

## SOUND PRACTICE 1.

1

An institution should manage all credit risk generated through its business activities.

Traditionally, financial institutions managed credit portfolios by business lines. This approach led to divergent practices regarding risk ratings, parameter estimation, limits, and a variety of other portfolio metrics. As a result, it was difficult to aggregate credit risk or even to compare businesses. The arrival of economic capital models and the requirements of Basel II have begun to change this approach.

Just as the management of market risk has been centralized, one can make a strong case for having a central view of credit risk throughout the organization. Such a view ensures a standard and consistent approach to measurement, monitoring, and control.

It is important to note that a business line perspective and a central view of credit portfolio management are not mutually exclusive. Many organizations will adopt a structure that recognizes the need to balance both business-unit issues and firm-wide perspectives. Under such an

approach, the portfolio management discipline can ensure consistent integration of enterprise-wide strategic objectives such as risk appetite across the organization, while individual business units can also be sure their tactical issues are addressed.

In practice, it is difficult to manage all credit risks across an organization. For this reason, organizations typically begin their portfolio management effort by first addressing their bulkiest exposures, which tend to be the large exposures to corporate borrowers. Once practices and principles around managing these exposures are in place, resources can then be directed toward tackling the remaining pockets of credit risk in the organization.

## **SOUND PRACTICE 2.**

**2** Portfolios should be aggregated on the basis of consistent criteria.

Leading-edge portfolio managers acknowledge the need to aggregate and manage credit risk across the enterprise, regardless of where it is originated or where it is booked. Often, a credit portfolio's makeup is determined by the origination function, and it can contain both large and small borrowers. This "mixing" of obligors occurs most frequently at the boundary between two business lines. For example, a mid-market business may contain a number of large corporate exposures. Even retail business can have some relatively large single-name exposures. When different businesses use different models and metrics to measure the portfolio, similar obligors could end up being judged in different ways.

An independent portfolio management function can overcome this problem by grouping assets that behave similarly and aggregating the portfolio according to consistent criteria. Some characteristics that should be considered are as follows:

- **Default probabilities:**  
Portfolios are best managed when the obligors share behavioral characteristics that allow the use of historical data to derive predictable default estimates.
- **Recovery estimates:**  
Geography, legal systems, and facility structures have a strong influence on recovery rates and can form the basis for grouping exposures.
- **Type of credit:**  
The type of credit can also determine an asset's behavioral characteristics. For example, counterparty exposure traditionally has less default risk than cash exposure.

### **SOUND PRACTICE 3.**

**3** All credit risk of an obligor should be aggregated.

The science of credit risk measurement has progressed to the point that all credit risks can be aggregated and expressed as a single number by obligor. This approach requires that credit risk management systems move from traditional notional measurement to some form of risk-based measurement (e.g., economic capital or a value-at-risk system). An organization should create an infrastructure that allows it to track exposure to an obligor in whatever form it may be generated in the firm's business activities. These forms may include loans, fixed-income securities, contingent exposures, liquidity lines, and, with the advent of synthetic securities, even those exposures that may be embedded within synthetic security baskets.

The advantage of looking at all the credit risk of an obligor is especially important in limits monitoring and concentration/correlation analysis. From a practical perspective, portfolio management should understand the entire exposure to an obligor to ensure the most effective management of that exposure.

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# IDENTIFY THE ROLE AND MANDATE OF THE CPM FUNCTION

## SOUND PRACTICE 4.

4

Senior management must issue a clear mandate to credit portfolio management to manage credit risk across the organization.

The board or senior management must give the credit portfolio management function a clear and formal mandate if it is to be effective in managing an institution's credit risk. This is especially important at the outset when a firm initially contemplates moving to an active CPM model.

Senior management commitment to portfolio management's mandate is essential to achieve organizational acceptance and to promote the transition to active portfolio management. Such a transition can create controversy within an institution, however, and management must be unwavering in its commitment to support such activities, especially in justifying to the business the short-term costs versus the long-term benefits.

The credit portfolio management function within a financial institution tends to evolve over time. Indeed, its mandate often expands from defensive actions around concentrations and credit concerns to more offensive-minded elements of portfolio management, including the adoption of more return-oriented approaches. Here again, senior management must be clear in its support of such a mandate shift, in terms of both its commitment to such a transition and its demonstrated willingness to reward the individuals commensurately for adopting a more risk-taking strategy.

The scope of credit portfolio management activities varies widely across organizations. Mandates to CPM groups may involve any or all of these goals:

- Improvement of the risk-adjusted return of a retained credit portfolio.
- Mitigation of event risk (headline risk) by reducing single-name and industry concentrations.
- Reduction of exposure to deteriorating credits.
- Minimization of the economic capital required to support the extension of credit.
- Increase in velocity of capital so that it may be redeployed in higher-margin activities.

Because these goals can conflict at times and must be achieved within budgetary constraints, the mandate of portfolio management should be transparent and well communicated.

## SOUND PRACTICE 5.

5

When establishing the credit portfolio management function, organizational roles and responsibilities should be clearly documented, including the relationship between credit origination, credit approval, and portfolio management.

A one-size-fits-all approach to the design and structure of a portfolio management function remains elusive. Some broad issues must be confronted before an organization initiates the function:

- **Organizational structure:**

The decision of where to place credit portfolio management within an organization will hinge largely on the mandate of the function, the scope of risk it manages, and the nature of the underlying retained risks emanating from the firm's client businesses. Regardless of whether credit portfolio management is placed within an origination line of business or within a risk management or finance function, the main success factor is that, in either case, the efforts of these functions should be formally coordinated under a single global management team. When a firm has a variety of businesses that hold or generate retained credit risk, a centralized structure allows aggregation of different risks to the same customers under one credit risk management umbrella. Such risk aggregation also helps a firm prioritize its concentrations and credit migration risks, especially when the firm is making allocation decisions for potentially scarce hedging resources.

- **Asset ownership:**

Portfolio management functions can be successful either as owners of the underlying assets or as advisors in managing the assets on behalf of the origination business. If asset ownership does transfer within a firm, the timing and the price of such a transfer must be clearly stated.

▪ **Public versus private:**

To the extent that profit generation, proprietary trading, or cost-mitigating position-taking are part of the credit portfolio manager's mandate, it becomes all the more likely that an outside-the-wall or public-side format will be selected. However, should the breadth of the underlying origination businesses and scope of risks managed by portfolio be narrower, and trading activity and public market access be less of an issue, a private-side model may be preferable. In either case, a thorough discussion of the issues with the Compliance Department is warranted, and proper compliance procedures must definitely be put in place.

Regardless of where credit portfolio management resides, the sound practice is to clearly articulate how to differentiate the responsibilities of the various groups that touch a credit exposure over its life cycle. This information will provide employees, regulators, shareholders, and other stakeholders, a greater understanding as to how credit risk is managed within the institution.

**SOUND PRACTICE 6.**

6

The credit portfolio management function should be staffed by a combination of individuals with the following core competencies: fundamental credit experience, quantitative analytics, and market/credit trading experience.

As risk management techniques in the equity, bond, derivatives, and loan markets converge, credit portfolio management demands the skill sets of both generalists and specialists. Generalist skills typically are needed in the analysis, underwriting, and monitoring functions. Specialist skills, such as advanced mathematics and statistical modeling backgrounds, are necessary in monitoring and optimizing the portfolio. However, to function efficiently, credit portfolio management must cross-train its staff. Moreover, an organization should understand that these unique

skill requirements are not necessarily available within the traditional bank structure and must be either developed internally or sourced from other disciplines.

The blending of fundamental and quantitative skills, as well as the balancing of trading and hold-to-maturity portfolios, makes ongoing training a unique challenge. Meanwhile, the products available to manage a credit portfolio are changing rapidly and training must be continuous, both for those who are executing the transactions and for those in senior management who are evaluating and approving the transactions. Key training areas continue to include fundamental analysis skills embedded in traditional credit training programs.

In addition, credit portfolio management staff must understand the link between internal rating systems and default probabilities—data sources for assessing both an internal credit outlook and implied default probabilities taken from market pricing. Also, credit portfolio managers must be trained in both cash market and credit derivative pricing of credit assets, and they must understand models for pricing, portfolio evaluation, and CDO tranche evaluation. In a sense, effective credit portfolio managers must possess the same set of skills found in a typical credit hedge fund.

Given the breadth of skills required from both a traditional credit and a markets perspective, compensation structures for CPM will tend to mirror those of other market participants employing the same skills, including hedge funds, traditional asset managers, and sell-side sales and trading functions.

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# STANDARDIZE RISK MEASURES AND MODELS

## SOUND PRACTICE 7.

7

The institution should define a risk-based economic valuation framework that permits it to assess and report its credit business.

Risk measures are key building blocks to set up and perform effective credit portfolio management. With the ever-growing size and complexity of credit portfolios in most financial institutions, portfolio management can no longer be practiced on the basis of qualitative analysis only, but must be supported by sound quantitative measures.

Although financial institutions will generally be subjected to external capital constraints (e.g., those imposed by regulators or rating agencies), each institution should define its own risk measures.

The valuation framework should encompass all products and risks contained in the institution's credit portfolio. It should permit the institution to estimate the economic values of the products under both actual and hypothetical scenarios. Lastly, it should account for credit quality, tenor, structural credit-risk-mitigation elements, and embedded options.

## **SOUND PRACTICE 8.**

**8**

The institution should compute a value distribution for its credit portfolio that captures deviations in economic value from the expected.

Capital is typically the risk measure summarizing the extent of possible deviations from the mean at a tolerance level chosen by the institution. For the capital measure, institutions typically use value-at-risk (percentile) or shortfall (expected value above the percentile) at a given probability level of the value distribution, both of which capture the size of losses in the tail. Alternatively, the standard deviation (or a multiple thereof) can be used if no tail risk measure is available.

The value distribution should reflect changes in the portfolio's economic value that can occur due to both defaults and quality migration. The default impact will be based on the frequency of default and the default severity, describing, respectively, the probability of default and the loss from such event. The migration impact will be assessed by the estimated change in economic value upon transition to a different risk grade.

While a number of models and approaches are available to estimate risk-based value distributions, there are certain key elements any such model must address. These include default frequency, severity of loss, credit migration, and interdependency of risks.

### **Default Frequency**

The majority of institutions use a dual-rating system that differentiates between the risk of an obligor's default and transaction-specific factors that affect recovery. Default probabilities are typically mapped from risk grades assigned to each risk in the portfolio, yet they can also be implied directly from market parameters such as credit spreads or equity values.

Two different views are commonly adopted in assigning risk grades: a "point-in-time" and a "through-the-cycle" approach. There is no clear preference for adopting a point-in-time versus a through-the-

cycle approach in determining risk grades and their associated default probabilities. In either case, the institution should ensure that default probabilities and ratings are arrived at and applied consistently across the various products in its credit portfolio.

### **Severity of Loss**

The institution should also have a product-specific measure of severity of loss, which ideally will be the product of the exposure at default and the loss given default. Since the uncertainty of the severity is usually fairly high, it should be modeled as a stochastic variable that incorporates the volatility around the severity-of-loss estimate and the interrelationship between probability of default and the severity of loss. These parameters will typically be obtained from historical data that the institution will have collected over time, or from product-specific studies performed (e.g., by rating agencies). Severity of loss will depend on factors such as seniority, security, industry, and jurisdiction.

### **Migration**

Typically, institutions use a predetermined time horizon to compute the portfolio value distribution and the related risk measures. This horizon is generally a function of the institution's estimate of the time required to adjust its capital in times of necessity, and as such it will be partly dependent on the liquidity of the instruments within the portfolio. If the portfolio has a maximum tenor longer than this time horizon, then credit migration should be explicitly accounted for in order to reflect the true change in economic value that occurred over this time.

### **Interdependency of Risks**

When obtaining a portfolio value distribution, a key ingredient—and arguably the most difficult to estimate—is interdependency of risks, often measured through correlation. Although correlation is very difficult to observe, especially on an ex-ante basis, its effects are actually observable with meaningful frequencies. It is therefore essential that this effect be accounted for; otherwise, the risk of the portfolio would be generally underestimated.

## SOUND PRACTICE 9.

9

The institution's risk measure should have a level of granularity sufficient to identify major risk concentrations.

As an input to rebalancing actions of the credit portfolio, the institution should be in a position to break down the measures of expected loss and capital to relevant sub-portfolios. A sub-portfolio may consist of individual investments, transactions, risk exposures, or aggregates thereof. The level of granularity should match the institution's ability to change the size of these positions by buying risk, selling risk, or performing other portfolio actions.

## SOUND PRACTICE 10.

10

The institution should have a formal model-validation process.

Institutions will likely use a number of model types, including *probability of default* (PD) models, *recovery* models (loss given default, or LGD), *utilization* models (exposure at default, or EAD), *asset valuation* models, *value-at-risk* (VaR) models, *economic capital* (EC) models, and *risk-adjusted performance* models (e.g., RAROC and SVA models). Validation processes and governance around these models should be established and approved.

The validation process for models used in credit portfolio management has at least three components:

- **Vetting:**

The institution's models should be subject to a continuous vetting process to ensure they are appropriate for the purpose they are intended and are calculating correctly.

- **Review of parameters and assumptions:**

The impact of the model type being used and its parameter settings extend far beyond the quant area. Turning a concept (such as Modern Portfolio Theory) into a model requires the model builder to make some assumptions. Within a particular model, the parameter settings impose further assumptions. It is essential that credit portfolio management and the institution's senior management understand and approve the assumptions made.

- **Back-testing:**

Because credit events are rare, the ability to back-test is more limited for credit models than it is for market risk models (e.g., VaR models). While this must be regarded as an evolving area, the credit portfolio management function should make the ability to back-test a medium-term goal. To this end, the CPM function should begin building the internal data set that would be used for back-tests and also investigate data-pooling exercises. In addition, the institution should not only devote resources to the invention of back-testing techniques for credit models, but also participate in industry programs to permit the adoption of techniques developed by other institutions.

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## DEAL WITH DATA ISSUES

### SOUND PRACTICE 11.

11

Comprehensive position data should be collected and stored on a frequency consistent with the ability to manage the position.

Data and information-technology systems are key to a successful credit portfolio management function. Unfortunately, these systems are not always considered when institutions implement a CPM function. Data challenges generally fall into the categories of *static* data, *transaction-level* data, and *performance-related* data.

Static data refers to counterparty data such as name, ratings, industry, and country of incorporation, which should be collected across the portfolio in a consistent manner. Counterparty identifiers should permit the aggregation of exposures to groups of related counterparties, and the institution should have well-defined procedures for identifying and recording members of groups.

Transaction-level data, including components such as exposure amounts, exposure types, usage, ratings, and collateral codes, are also key. Firms should be able to consolidate transaction-level data by counterparty, sector, region, etc.

Finally, performance metrics, including revenue and earning components and mark-to-market positions, are key elements of any portfolio reporting and should be updated with a frequency consistent with the ability to manage the underlying exposure.

Institutions should take steps to improve their existing data architecture and strategically integrate their risk management and financial reporting/booking systems into a unified, seamless model. Senior management in all affected areas should commit to a sustainable implementation plan.

#### **SOUND PRACTICE 12.**

**12** Internal data on credit losses should be collected and stored.

The collection of portfolio performance measures starts with maintaining consistent and detailed records of default experience. For example, information about portfolios in which the counterparties are large corporations would be maintained on a name-by-name basis, while information about portfolios in which the counterparties are mid-market borrowers or retail may have to be maintained in various aggregations rather than for each individual default.

The stored information should include PD, EAD, and LGD ratings at least one year prior to default. Collateral valuation payments received and provision levels should be recorded either on consistent time intervals (e.g., quarterly or annually) or on any other relevant time interval. The purpose of these records is to permit a calculation of the LGD and EAD experience for each defaulted exposure (or aggregation of similar defaulted exposures) at the time of default.

Given the infrequent nature of defaults, these records need to be maintained for lengthy periods of time. While institutions may not currently have detailed records extending back more than a few years, they should, going forward, maintain records that cover several business

cycles. On a practical basis, since defaults are more likely to occur during economic downturns and since these downturns occur in cycles extending over several years, the records of default experience should be designed so that they can be stored, understood, and analyzed over multiple credit cycles.

Records of individual defaults also need to be designed so that they can be easily integrated with overall portfolio records to facilitate calculation of realized default incidence. This means, among other things, that the records should be easily grouped by credit rating, product type, collateral type, industry, and geographic location of the counterparty.

### **SOUND PRACTICE 13.**

**13**

The institution should be committed to data integrity, and clear responsibility for the integrity of data elements should be established.

Improving data integrity starts with simplifying the data capture/entry process. Each institution should periodically review the processes for relaying information from the origination team to the risk-approval functions and on to the middle and back-office systems to ensure that data entry and reentry points are streamlined as much as possible.

Institutions should implement a comprehensive set of data-integrity checks, including the following:

- **Processes for reviewing data at the time of entry:**  
This requires two sets of eyes for important data elements.
- **Data integrity reports and a “feedback loop” mechanism:**  
If origination, portfolio management, and risk approval officers can quickly retrieve data on their sub-portfolio and see details of the transaction in an easily readable format, they will often be the first to detect the errors and inaccuracies that will inevitably occur. It is vital that such errors be corrected quickly. This feedback is probably

best captured by having a “hotline” or other process whereby those who know a transaction best can communicate the required changes to the data-integrity team.

- **Regular reporting of the data:**

Continuity reports that track the portfolio’s evolution between two points in time can be helpful. The users of such reports need to be plugged in to the feedback loop.

- **Data filtering:**

This process permits the data to be checked for logical inconsistencies.

#### SOUND PRACTICE 14.

14

The institution should establish a master set of definitions and mappings.

In large financial institutions, credit portfolio management data is often drawn from a variety of source systems. Typically, these systems have separate identifier codes. For example, derivatives trading activity may be tracked with a system that references clients with identifiers that are different from those used in systems for other credit assets.

The institution must have a “master” mapping between the various internal and external identifiers for counterparties, ratings, industry codes, product codes, and country or region codes. This master mapping file should be maintained centrally and updated regularly to permit the entry of new clients and the merger or exit of existing clients. Ideally, each institution should reference a single, unique coding system. In cases where a unique coding system is not feasible, indirect reference and mapping of different regional systems to a single central coding system may be a viable alternative.

**SOUND PRACTICE 15.**

**15**

The institution should be able to reconcile its credit portfolio management data to the institution's books and records.

There should be no material or systematic difference between the portfolio data reported by the firm and the underlying portfolio data used by the portfolio management group to manage the firm's credit exposures.

The frequency of reconciliation should depend on the institution's accounting practices. Many mark-to-market institutions reconcile accounting and exposure information on a daily basis. For accrual-based institutions, this reconciliation may occur only once a month.

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# UNDERSTAND ECONOMIC VALUE VERSUS ACCOUNTING VALUE

## SOUND PRACTICE 16.

16

Credit assets should be marked to market (or model) for the purpose of assessing economic value.

Few topics in credit portfolio management create more controversy than valuation. The roots of this controversy lie in the historical illiquidity of credit markets, the traditional “buy and hold” strategies of credit investors, and the rapid growth in secondary credit markets that has occurred in the past twenty years. A case in point is the valuation of loans and commitments in commercial banking.

Historically, banks originated loans and commitments with the intent of holding these assets until maturity. As long as obligors performed and appeared financially sound, amortized cost at origination was assumed to represent a “fair price” for these assets. However, the credit markets’ rapid growth in liquidity in recent years has enabled loans and commitments to be marked to market (or model). This information has challenged the assumption that amortized cost is evidence of fair value.

The primary reason that credit assets should be marked to market is that market valuation enables one to measure correctly the impact of decisions to originate, hold, or sell individual credits. When measured correctly, the economic impact of decisions should be the primary factor used to motivate the behavior of decision makers and establish performance criteria.

This sound practice is directed internally to management accounting, not externally to support investor decisions. Although there are good arguments for the external disclosure of credit portfolios' market value, it is not necessary that management accounting follow external or official reporting requirements.

#### **SOUND PRACTICE 17.**

**17**

The difference between the origination value and the economic value (market price) of a credit asset must be measured and taken into account in evaluating the profitability of customer relationships.

Depending on the nature of the product and the market, credit positions may be originated at prices that are less than their secondary-market value. In this situation, the difference between the origination value and the market value of a position is the opportunity cost of lending. Viewed in isolation, such transactions are value destroying, but viewed in the context of a broad customer relationship, they may facilitate the cross-selling of other, higher-value-added products.

Although methodologies for measuring the opportunity cost of lending vary across institutions, these costs should be measured and included in the assessment of customer profitability. Explicitly recognizing these costs by either internal cash transfers or shadow bookkeeping encourages discussions about future revenue opportunities and a firm's ability to win

this revenue in competition with other institutions. In addition, this information enables firms to measure the true profitability of customer relationships and allocate capital to the most profitable relationships.

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# SET LIMITS AND MANAGE CONCENTRATIONS

## SOUND PRACTICE 18.

18

Institutions should set limits that address concentrations and correlations within the portfolio.

The process of limits setting should take into account the size and nature of the institution, its strategy, its credit appetite, its competitive advantages, its systems, and its existing level of portfolio diversification.

Many firms have a particular expertise in certain sectors or regions, which may justify extra concentration of risk in these areas. It should be recognized that diversification for the sake of diversification, particularly when it is directed into areas where an institution has little expertise, may actually add to risk rather than reduce it.

There is no ideal, but since the objective of a limits system is to allow an institution to manage its credit exposure in a way that affords protection from a single credit event, the limits should be set around correlated positions or clusters of exposure within the portfolio. Such limits around correlated exposures are most often expressed in terms of limits by obligor group, industry, and region.

**SOUND PRACTICE 19.**

**19**

Traditional notional-based limits systems should be supplemented by limits systems that use risk-based measures.

For institutions with homogeneous credit exposures focused primarily on senior unsecured corporate exposure, a simple limits system based around notional limits and ratings can be effective. For others, the customization that is available around the credit product makes it difficult to compare notional exposure across obligors, sectors, and regions.

For institutions where credit exposures range from simple unsecured exposure to structured exposures such as project finance, trade letters of credit, performance letters of credit, asset-based lending, pre-export financing, uncommitted money-market lines, receivable securitizations, and so on, a limits system based exclusively around notional limits may not be as effective and would require an endless number of notional limit combinations. To address this, many institutions supplement notional limits systems with risk-based credit equivalent exposure systems to convert the wide variety of credit exposures into a single common exposure measure.

Economic capital (EC) and value-at-risk (VaR) measures are two such examples of credit equivalent exposure systems. EC and VaR measures allow an institution to convert the endless variety of ratings, regions, product types, tenors, and collateral types into a single metric that allows comparisons across exposure types, regions, and business lines. Limits set around these risk-based measures can often provide more meaningful thresholds.

Finally, since portfolio level limits are designed to protect against outsized losses, stress loss analysis can be helpful in understanding the potential for outsized losses related to concentrations in the portfolio and, accordingly, in evaluating the appropriateness of limits.

**SOUND PRACTICE 20.**

**20**

Proper governance around the limits system should be in place, and limits should be set and exceptions approved by a group other than the group whose mandate it is to manage the portfolio.

Governance around the limits system, regardless of its structure, is essential to its effectiveness in helping an organization manage concentrations. In most organizations, a separation of powers should exist between those who are setting the limits and those who are accountable for managing the portfolio within the limits.

Limits should be viewed as thresholds rather than hard limits. Once the notional or risk-based measure for a borrower, sector, or region exceeds the limit, there should be no automatic hedging or disposal of exposure for that client, sector, or region. It is important that firms do not blindly follow the model outputs. Instead, the breach of an EC-based guideline should prompt the appropriate discussion between Risk, Portfolio Management, the Origination team, and, if necessary, the board as to, for example, the nature of the underlying exposure, the accuracy of the data inputs behind the EC number, and the outlook for the obligor, region, or sector.

The governance structure should outline and facilitate the manner in which such discussions take place. These discussions about limits excesses can help an institution determine if it is comfortable with the existing level of exposure or if an action plan is required that will identify the steps and the timeframe to reduce the exposure.

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## STRESS TEST THE PORTFOLIO

### SOUND PRACTICE 21.

21

The institution should have a “top down” stress-testing process in place to analyze the impact of extreme economic events on the credit risk of the overall credit portfolio.

Stress testing measures the vulnerability of portfolios to extreme yet plausible events. A stress-testing program can be built around a variety of objectives, which should be related to the organization’s risk objectives. The main objective is to inform management about the portfolio’s vulnerabilities and to establish the portfolio’s sensitivity to risk factors. Other objectives might include setting or refining limits, defining contingency plans, planning for liquidity, identifying migration issues, and so on. Objectives can also be specific to sub-sections of the portfolio. Having a specific set of objectives is crucial to keeping the program focused, and it is useful to have a mix of macro (overall portfolio) and micro (sub-portfolio specific) objectives.

In general, stress testing falls into two categories: scenario testing and sensitivity testing. Scenario testing evaluates the impact of particular events (deemed as stressed) on a portfolio. In these cases, the events can be actual or hypothetical. In this approach, one defines an event, determines the impact on “stressed” parameters such as PDs and LGDs as a result of the event, and then computes the economic capital or some other loss measure.

Sensitivity stress tests are generally statistical in nature. They attempt to establish the impact of a change in one or more risk drivers or parameters on a portfolio. For example, an institution can compute the risk measures by assuming that all default probabilities increase by 5%. In these tests, the event that may cause the shock in the parameters is not determined. Shocks to the parameters are generally computed using statistical measures or can be derived using judgment.

#### **SOUND PRACTICE 22.**

**22**

The institution should supplement the “top down” approach with a “bottom up” stress-testing process to measure the impact of adverse events on obligors, or sets of obligors, with significant exposures in the credit portfolio.

A bottom-up stress-testing procedure is generally done at an individual exposure or obligor-specific level. This approach is important for portfolios that have high single-name concentrations and should generally supplement top-down stress-testing activities. In this analysis, one is interested in the impact of events or scenarios on specific exposures or obligors. In this approach, the institution relies on expert judgment for the selection of scenarios and their impact on exposures or obligors. The practitioners then have to translate the scenarios’ impact onto specific obligors. An aid to this process can be actual historical data. The main constraint in this approach is the time commitment and costs involved in obtaining the expert judgment.

The outputs of the stressed events then need to be related to the organizational goals. For example, the EC rate for the portfolio is generally linked to the firm's external rating. One can thus translate a stressed EC rate into a change in the firm's rating. Another example is to view the changes within the framework of limits the organization has in place. One can observe which limits were breached under the events. Finally, the probability of each result should be estimated, which helps in prioritizing the scenarios. The mechanism to communicate the results to senior management should be part of the regular update, which is provided by the portfolio management team.

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# ALIGN ACCOUNTING CONVENTIONS WITH PORTFOLIO MANAGEMENT PRACTICES

## SOUND PRACTICE 23.

23

Options available in official accounting rules should be:

- Used to reveal the true economics of positions.
- Applied in the context of defined risk management policies and strategies.

Public companies that file with the Securities and Exchange Commission (SEC) in the United States are required to report, or reconcile, their financial results according to U.S. generally accepted accounting principles (GAAP). While the SEC has the statutory authority to establish GAAP, the Financial Accounting Standards Board (FASB) has been designated as the organization in the private sector responsible for establishing standards of financial accounting and reporting. Countries in the European Union and other countries that have adopted International Financial Reporting Standards (IFRS) as their national standard are required to report under IFRS, which is set by the International Accounting Standards Board (IASB).

The FASB and the IASB recognize fair value as the most relevant measure for all financial instruments. Generally, quoted prices in active markets are considered the best evidence of fair value. Use of models to estimate market price information is also recognized as a valid measure of fair value; inputs obtained from the market are considered more relevant than inputs obtained from within the institution.

GAAP and IFRS accounting rules tend to be tightly prescribed and often restrict the use of fair value accounting for credit positions. If accounting rules allow credit portfolio managers to exercise discretionary choices, such as a fair value option, hedge accounting, and the transfer of loans and commitments from a hold-to-maturity account to a held-for-sale account, these choices should be applied in the context of defined risk management policies and strategies. For example, the risk management policies of credit portfolio management frequently focus on managing the default risk of credit portfolios rather than the fair value of these portfolios. In these situations, credit portfolio managers might choose to report the “official” financial performance of their portfolios to investors using amortized cost rather than fair value accounting.

In all cases, however, discretionary accounting choices require that credit portfolio managers define the objectives of their risk management strategies and understand the implications of these strategies in light of current accounting rules and current market liquidity.

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# REBALANCE THE PORTFOLIO TO ACHIEVE STRATEGIC OBJECTIVES

## SOUND PRACTICE 24.

24

The mark-to-market book used for active portfolio management should be subject to appropriate market risk limits, and its P&L should be maintained and monitored daily.

The recent development and evolution of traded credit products gives credit portfolio managers the unprecedented ability to adjust their credit portfolio by buying or selling credit risk to achieve the desired characteristics of the portfolio or to better align it with the organization's strategy, credit outlook, or spread outlook.

Many active portfolio management transactions introduce trading book risks and P&L volatility to the CPM function. These risks arise from the use of market-based instruments, such as credit derivatives, bonds, and structured products, to either go long credit risk (generally investing in credit) or go short credit risk (generally hedging existing credit exposure). Many of these instruments are required to be marked-to-market on a daily basis and may create exposure to market risks beyond conventional credit risk.

Trading limits for the CPM group, outside of traditional credit limits, should be established and monitored on a daily basis. These limits should be specific to CPM and may include credit limits, market risk limits, and P&L limits. Depending on the complexity of the CPM book, limits may range from the simple (i.e., notional limits/obligor limits) to the more complex (i.e., the Greeks: delta, gamma, vega, theta, etc.). Separate limits may apply to 1) short credit risk positions hedging existing exposures and 2) long credit positions used for investment purposes.

It is appropriate to develop market risk positions and limits by risk rating; for example, the firm is allowed to hold more risk to a “triple-A-rated” credit versus a “single-B-rated” credit. It is also useful to stress the above limits, particularly the credit spread limits, to better understand how large market movements will affect the CPM trading portfolio. For the credit spread risk, absolute spread shifts (e.g., 100 basis points) and percentage spread shifts (e.g., 10%), along with stresses for flattening and steepening of the curve, can provide useful information.

#### **SOUND PRACTICE 25.**

**25**

Execution of portfolio-rebalancing activities should be centralized within a specialized group.

Firms should endeavor to centralize single-name execution and portfolio strategies in a single group to ensure consistent analysis, approval, execution, and reporting of all positions taken on behalf of the portfolio. This group should interface with appropriate legal, credit risk, market risk, regulatory, compliance, accounting, reporting/modeling, and tax groups. Approval for new products should be granted from the respective groups, and trading should be implemented under this approved program. This group may exist on either the public or private side of the wall as long as appropriate compliance procedures are in place.

The increasing innovation in the market has led to more complex instruments, which should be managed by a staff that has a full understanding of them. Many of the risks encountered will be outside of traditional bank lending risks, so employing a staff with knowledge of market and trading risk practices is vital. Leveraging off the expertise of internal desks and their support staff may be appropriate.

**SOUND PRACTICE 26.**

**26** Credit portfolio management's execution function should be independent of the institution's own trading areas and have its own execution capability.

Many firms have market-making trading desks that are active in trading bonds, loans, credit derivatives, and structured products such as CDOs. While pressure may exist to use these internal trading desks exclusively for all transactions on the credit portfolio, there are many benefits to developing both internal and external execution capability.

Internal desks carry the advantage of keeping the business within the firm and provide important flow to the desks. Internal desks should be able to underwrite trades, so CPM can consider the risk to be fully mitigated once the trade is executed with the desk (i.e., without having to wait for the trade to be covered externally). However, agenting of risk may be appropriate in certain cases where the desk cannot underwrite the trade. CPM should be aware of regulations around these types of trades.

External dealers may at times provide better execution. Internal desks cannot always be the best bid/offer on every trade since external dealers may view the risk differently or may have a specific axe. Internal desk may also not have the capacity to execute large transactions or may not have the scope of coverage (industry, geography, asset class) as the external desks.

External dealers provide substantial information flow (daily pricing runs, research, recommendations, notification of trades, etc.) that is not always available from internal desks. CPM should be clear with the external desks about the relationship with internal desks; it is important that the external dealers treat the CPM group like a customer, not a competitor.

Finally, the CPM group's trades should be segregated from the positions of other trading desks to enable appropriate monitoring of the positions.

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# ESTABLISH OBJECTIVES AND MEASURE PERFORMANCE

## SOUND PRACTICE 27.

27

The portfolio management function should have clearly defined performance measurement targets.

The setting of performance measurement targets is fundamental to good management because targets inform business decision-making and planning. To be effective, targets must be measurable and specific with regard to the type of measure, the relative importance of the target, and the period of measurement. In other words, a performance target that says the portfolio should improve is insufficient because it neither informs as to how that improvement is measured, nor does it make clear over what period of time the measurement is based.

Some responsibilities of a portfolio management function can lead to conflicting strategies (e.g., the management of both regulatory capital and return on economic capital targets). When performance measurement metrics lead to potentially conflicting actions, there should be a clear understanding of the relative priority of each measure and any minimum requirement for each performance metric.

Performance measures can take many forms, including revenue targets, risk/return ratios, internal risk measures, portfolio guidelines, and external benchmarks. However they are defined, performance measures need to be relevant to the institution's overall business plan and clearly understood by senior management.

**SOUND PRACTICE 28.**

**28**

Senior management should agree on performance measurement targets to ensure consistency with overall institutional objectives.

Senior management must be actively involved in setting and agreeing on performance measurement targets, both to ensure that they have a clear understanding of the measures and objectives that will drive the management of the portfolio and to ensure that these are consistent with the strategy being implemented elsewhere in the institution.

**SOUND PRACTICE 29.**

**29**

Performance measurement targets should be consistent with the mandate of the portfolio management function.

Performance measurement targets must take into account the role and mandate given to the portfolio management function. For example, if an objective is to create incremental income but the portfolio management function is unable to take on exposure on its own account, the mandate and objective are inconsistent. The setting of performance measurement targets represents an opportunity to review the applicability of the function's mandate in the light of the institution's strategy.

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## BE TRANSPARENT IN DISCLOSURES

### SOUND PRACTICE 30.

30

The institution should disclose:

- The mandate of its credit portfolio management function.
- Summary credit portfolio data.
- The products and structures used to manage the portfolio.
- The results achieved by its portfolio management activities.

There are two types of communication and disclosure activities by financial institutions:

- Mandatory requirements set by regulatory bodies.
- Discretionary disclosures made by individual institutions.

Mandatory communication and disclosure requirements are usually set by the regulators that govern companies with publicly traded shares. In addition, financial institutions are generally subject to further disclosure requirements to ensure the safety and soundness of their operations. Although the objectives of different regulatory bodies may be similar, current disclosure practices vary significantly across regulatory jurisdictions and among firms operating in the same sector.

Several factors are behind the current differences in mandatory communication and disclosure requirements for CPM activities:

- Active management of credit portfolios is a relatively new field that has grown rapidly in the past ten years.
- Credit cycles tend to last for many years, and the benign phases of these cycles tend to mask the true performance of credit portfolios.
- Credit portfolios vary in size, contribution, and relative importance within financial institutions.

Although efforts to coordinate regulatory practices and enhance communication and disclosure requirements will continue, individual institutions are encouraged to increase their discretionary disclosures of CPM activities. These disclosures should be designed to communicate the importance of these activities to the institution's financial performance.

Credit portfolio management practices differ in their responsibilities and objectives across financial institutions. Accordingly, a clear statement of the institution's CPM practice is necessary to convey this function's contribution and performance. Such a statement should include:

- Confirmation of the existence of the CPM function.
- The responsibilities and structure of CPM within the firm's overall risk management practice.
- Objectives of the CPM practice.
- Description of the tools and methods used to manage the credit portfolio.

Existing disclosure requirements and practices often fall short in conveying a clear scope and activities of the CPM function. The various components of the function's activities may be reported in different sections of the institution's disclosures, such as Business Overview, Financial Review, and Risk Management.

The institution should describe the key risks within its credit portfolio and how these risks are managed. Disclosures by region, industry, and maturity should be encouraged, over and above their mandatory requirements.

Further disaggregation of this information to reflect the internal mandate of the credit portfolio management unit or commonly cited categories of credit risk would provide a better view of the practice and the scope of these activities.

Finally, the institution should disclose the results achieved by its credit portfolio management function; this disclosure should incorporate all portfolio management activity, be it origination and full syndication, primary and secondary loan sales, or hedging of hold positions using market instruments. This recommendation directly addresses the concerns of rating agencies and equity analysts, who, in the past, have generally had great difficulty in gauging the impact of CPM activity.

The recommendation is that all financial institutions managing credit portfolios describe these portfolios and the manner in which they are managed in the same general way that asset managers describe their individual funds and how they are managed.

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