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## Foundations of GRC: Commodity Risk Management

### Executive Summary

Organizations are in an ongoing effort to achieve sustainability, consistency, transparency, accountability, and efficiency across risk and compliance initiatives. The fact of the matter is: organizations need complete visibility into the portfolio of risks spread across distributed and complex business processes and relationships. A spectrum of organizations are susceptible to uncertainty and risk in relation to commodities. Rising demand for commodities, limited supplies, complex supply chains, international relations, hedging, and exchange rates – all have a large impact on the ability of organizations to produce and deliver goods to their clients profitably. As organizations define their enterprise risk and GRC strategies it is essential that they gain an understanding of the central relevance that commodity risk management plays.

Risk management is ultimately about managing uncertainty in business. While there are a number of risk management initiatives that are part of a GRC or ERM program (e.g., treasury, operational, strategic risk), commodity risk management is often overlooked and poorly managed across a number of siloed roles in

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the organization which are focused on specific commodities. If an organization's bottom line is subject to extensive variability because of fluctuating commodity prices, it becomes paramount that the organization develop and implement processes and systems to manage commodity risk centrally on a holistic basis. Commodity risk management can be broken down into the following components that should come together in a risk and compliance management strategy: market risk, operational risk, counterparty/credit risk, and regulatory risk. A comprehensive commodity risk management program will tie these four areas together across commodity risk silos. Unfortunately, many organizations are managing these areas, as well as individual commodity areas, in separate processes with little oversight across commodity risk not to mention enterprise risk.

Commodity risk management requires that organizations provide an integrated view across commodities that rolls-up into a broader risk management program. Organizations developing a strategic and integrated approach to commodity risk management are aiming to achieve sustainability, consistency, efficiency, transparency, and accountability.

Success in risk management begins with a strategy – how to effectively manage risk across the organization. The core elements to managing a commodity (or broader enterprise) risk strategy are: risk intelligence, collaboration, modeling, calculation, and strategy. All five of these elements tie together to effectively manage commodity risk as an ongoing process and component of an enterprise ERM and GRC strategy.

Organizations looking to manage commodity risk start with defining their commodity risk management architecture as part of their enterprise risk management architecture. This requires that the organization deploy an infrastructure and supporting processes that deliver real-time commodity transparency across the business and its relationships. Today, organizations manage commodity risk in different systems (or even spreadsheets) that are not integrated. Under this scenario, an organization will struggle to get a full picture of the risk it faces.

Fundamental to a commodity risk management architecture is the ability to provide multi-commodity risk management that allows an organization to manage across its commodity risk areas. Organizations benefit from a common platform for commodity risk management as it allows them to monitor risk across commodities, provide integration and visibility, and thereby deliver greater transparency into intricate risk relationships. Core elements of a commodity risk management architecture include: counterparty risk management, operational risk management, price risk management, compliance management, risk intelligence, real-time architecture, integration, robust audit trail, process management, position module, and dashboards & reporting.

Unfortunately, most commodity risk management solutions do not deliver on the range of these core elements. Instead, many platforms deliver parts of this – particularly around specific commodities –and do not provide a single platform for the range of commodity risk issues. Still other organizations have failed in this architecture as they have relied on spreadsheets to deliver their commodity risk management architecture. Organizations need to consider commodity risk platforms that have a holistic and integrated view across commodity risk management – such as Triple Point Technology which delivers trading and risk management solutions for commodities including power, oil, gas, coal, metals, agricultural products, freight, and bio-fuels.

## Role of Commodity Risk Management in GRC

Organizations are in an ongoing effort to achieve sustainability, consistency, transparency, accountability, and efficiency across risk and compliance initiatives. The fact of the matter is: organizations need complete visibility into the portfolio of risks spread across distributed and complex business processes and relationships.

Old paradigms of managing risk and complying with laws and regulations do not work. Tackling each risk issue and compliance requirement as a single entity is doomed to failure. This method introduces greater risk as the organization lacks visibility across silos within the business, leading to a lack of understanding in the interrelationship of risks, causing greater uncertainty in business, and resulting in a growth in exposure to loss. The organization is quickly beaten down and defeated, realizing it cannot keep up with growing risk and compliance burdens in a fiercely competitive, global, distributed, and risky business climate.

Navigating the organization in the twenty-first century requires an integrated and holistic view across corporate governance, enterprise risk, and compliance management (GRC). To achieve a holistic view of GRC, organizations need to define a taxonomy and interrelationship of corporate performance and governance strategies, enterprise risks, and compliance requirements/mandates. This necessitates the establishment of a common enterprise architecture and a process to effectively and consistently manage GRC. Without an integrated approach to GRC, the scattered risk and compliance approaches of the past will fail. A sustainable GRC architecture is one in which accountability for risk and compliance is effectively managed and the business has a system of record to understand and manage the diverse complexity of risk and compliance issues.

## *Issues of GRC expand across a business and its relationships*

GRC is more than just a roll-up of issues into a high-level dashboard; it is about getting down into the depths of risk and compliance issues scattered across the business and its complex web of relationships. The complexity of issues with which organizations struggle in order to manage GRC is astonishing. Consider that organizations have . . .

- **Evolving corporate governance requirements.** Ultimately it is corporate executives and the board of directors that are at risk when things go wrong. As a result of the increased pressure to oversee risk and compliance, executives and the board are (rolling up their sleeves) and becoming more involved as they face greater personal risk within their oversight and management roles. They are weary of increased regulatory actions, risk inherent in a highly competitive global environment, corporate litigation, demands of corporate social responsibility, as well as stakeholder/shareholder retaliation. These governance functions provide the aggregation point for a holistic view of GRC that is concerned with consolidation of corporate performance, compliance, and risk metrics that gets communicated to stakeholders and become a permanent record when entered into corporate financial statements and reports.
- **Diversity in enterprise risks.** Organizations grapple with an array of diverse risks managed across autonomous processes in the organization. Geo-political, corporate treasury, operational risks – all bear down on the organization's posture to define, manage, and monitor risk. To remain competitive in today's market, organizations need to stay on top of their game by monitoring risk to their business internally (e.g., their internal controls and processes) and externally (e.g., the competitive, legal, and geographic environments). Success in business requires organizations be keenly aware of global financial markets, commodities, hedging, economic directions, environmental issues, global supply chains, varying regulatory practices, and an array of operational risks.
- **Expanding regulatory mandates.** Organizations face expanding regulations, increased fines and sanctions, and aggressive regulators and prosecutors around the world. Unfortunately management has become all too familiar with terms such as deferred prosecutions, consent decrees, and corporate integrity agreements. Compliance is complex and covers a range of business issues and processes permeating the organization. From financial oversight, hedging requirements, employment/labor, quality, environmental, health and safety, security, privacy - the list of mandates appears endless. Regulatory compliance is a key topic of discussion from the top of the organization down into the trenches of business operations.
- **Growing concern regarding the organization's reputation.** The organization strives to demonstrate to stakeholders, clients, and business partners that it is an ethical organization – one that “walk it's talk” and not just “talk it's talk.” Organizations are increasingly focused on environmental, financial, and social aspects of corporate governance brought together under the umbrella of Corporate Social Responsibility (CSR) and sustainability.
- **Disappearing business boundaries.** Today's business is not a self-contained entity but represents an intricate web of business relationships. Factoring in expanding regulations, increasing litigation, and a growing risk profile with the dynamic and distributed nature of business – the demand for a strategic approach to GRC becomes clear. Managing hundreds or even thousands of business relationships as well as the information, goods, and services that flow across these relationships is a growing concern. Because business partners and the supply chain introduce significant risk and compliance challenges, an entity is no longer defined by traditional organizational boundaries.

## Role of commodity risk management in GRC

A spectrum of organizations are susceptible to uncertainty and risk in relation to commodities (e.g., iron ore, crude oil, coal, ethanol, salt, sugar, coffee beans, soybeans, aluminum, rice, wheat, gold and silver). Rising demand for commodities, limited supplies, complex supply chains, international relations, hedging, and exchange rates – all have a large impact on the ability of organizations to produce and deliver goods to their clients profitably.

With a struggling global economy, many organizations are particularly focused on managing commodity, hedging, foreign exchange, and capital risks in addition to trying to gain an understanding of operational risk management and regulatory compliance. This diverse focus brings a tremendous amount of uncertainty to business which equates to risk that needs to be managed. Thus, managing this commodity risk has to be a foundation of an organization's GRC and enterprise risk management (ERM) strategy.

As organizations define their enterprise risk and GRC strategies, it is essential that they gain an understanding of the central relevance that commodity risk management plays. With today's economy experiencing turbulent times, it is necessary that organizations get a grasp on the oversight of risk to commodities that impact their business.

## Understanding the Breadth of Commodity Risk Management

Risk management is ultimately about managing uncertainty in business. While there are a number of risk management initiatives that are part of a GRC or ERM program (e.g., treasury, operational, strategic risk), commodity risk management is often overlooked and poorly managed across a number of siloed roles in the organization which are focused on specific commodities.

Commodity risk exposure is growing in relevance to an array of organizations. If an organization's bottom line is subject to extensive variability because of fluctuating commodity prices it becomes paramount that the organization develop and implement processes and systems to manage commodity risk centrally on a holistic basis. As such, it is both appropriate and necessary to include commodity risk management as an initiative within a Chief Financial Officer or Chief Risk Officer sponsored GRC or ERM program. The more an organization depends upon a raw material source the greater risk the organization has to this commodity. In today's complex business environment it is essential that organizations susceptible to commodity risk gain visibility and transparency into the range of commodity risks across their operations and how these interrelate with other risks as well as corporate performance.

Commodity risk management focuses specifically on the uncertainty in the price and the availability of the commodity in the current and futures market. These markets impact corporate income and capital because of the fluctuation and uncertainty in price and availability of commodities. Commodity risk management impacts a range of parties in the business life cycle including: **producers** such as farmers and mining companies who face price risk, cost risk, and quantity risk; **buyers** which covers cooperatives and commercial traders that face price risk between the time of purchase and sale; and **exporters** who face not only the risk in price fluctuations between purchase at a port and sale in a destination market but also the political risks with regard to export licenses or foreign exchange conversion.

Managing commodity risk has emerged as a key issue in our current turbulent economy. Consider petroleum, which has fluctuated from one extreme to another in 2008. Crude oil (along with its resulting impact on gas prices) has been all over the place from a high over \$140/barrel to a low under \$40/barrel in 2008. This impacts a broad array of industries such as airlines, which have seen fuel costs rise seven-fold over the last few years only now to have them come sliding down. Commodity risk management centers on price volatility and supply availability and understands how it will impact a company's hedging strategy and business operations to manage commodity risk.

Commodity risk management can be broken down into the following components that should come together in a risk and compliance management strategy:

## Foundations of GRC: Commodity Risk Management

1. **Market risk.** This involves the risk in commodities that stems from fluctuations in world commodity prices, exchange rates, and the basis between local and world prices. This fluctuation stems from supply and demand of the commodities and provides the relationship to the other risk elements below.

*Example.* Amaranth Advisors - Connecticut hedge fund – caused instability in the natural gas market in September 2006. Amaranth lost nearly \$5.85 billion (two-thirds of its assets) as a result of poor market risk management and control in the natural gas futures and options markets. Amaranth funds were liquidated by the end of the year. All because of highly risky trades combined with significant market risk.

2. **Operational risk.** Organizations face a range of operational risks that stem from commodity risk management. Supply risk (also known as quantity risk) is an operational commodity risk that centers on supply availability. It is the risk in an organization's ability to deliver goods/services to their customers based on the organization's ability to acquire the commodities they need, when they need it and in the right quantity and quality. As companies contract or expand their supply chains, the exposure to commodity risk increases by introducing multiple points of failure or issues of capacity. In addition this area of commodity risk is also very susceptible to geo-political risk management. Other commodity operational risks which organizations are addressing include straight through processing, over-reliance on and use of spreadsheets to manage risk, limit setting for traders/purchasing, assuring appropriate sign-offs on trades, and management of automated confirmation and settlements.

*Example.* TransAlta was hit with a \$24 million charge in 2003 after a bidding mistake because of a computational error from a cut and paste into wrong columns in an Excel spreadsheet. This is just one of many documented cases that have led to fraud charges, loss of profits, and projects going over budget – all caused by simple errors in Excel.

3. **Counterparty/credit risk.** This element of commodity risk focuses on maintaining viable business relationships and transactions. Counterparty risk (e.g., default risk) is the risk an organization faces when another party does not provide payment on a credit derivative, credit default swap, credit insurance contract, or other trade/transaction that it is obligated to pay on.

*Example.* Constellation Energy was an industry star with \$21 billion in sales in 2007. However it has been pushed to the verge of bankruptcy in the past few months because it had underestimated its own credit risk and the associated collateral it needed when its credit rating was downgraded. The economic downturn and resulting chaos on the financial services sector, severely affected its ability to fund its energy commodity trading operations.

4. **Regulatory risk.** Organizations face a range of legal and compliance risks within commodity risk management. Compliance oversight is required to manage training, policy-making, and monitoring of commodity sales, marketing, and business operation/transaction activities. This frequently requires understanding and adherence to a complex array of international regulations governing commodities which often focus on: monitoring and documenting trade flows, order routing/execution, and trade reporting functions for compliance as well as irregularities; maintaining the commodities compliance policies and procedures and appropriate training; and documenting, categorizing, and tracking of error trades and error trading policies.

*Example.* GE was forced to restate earnings from 2001-2005 because of noncompliance with FAS 133. As the result of a regular audit review, GE discovered that it was in non-compliance to FAS 133 (regulations governing accounting for derivative instruments and hedging activities) for certain transactions used to protect from changes in interest and currency exchange rates.

A comprehensive commodity risk management program will tie these four areas together across commodity risk silos. Unfortunately, many organizations are managing these areas as well as individual commodity areas in separate processes with little oversight across commodity risk not to mention enterprise risk. Leading practices in commodity risk management tie the program into strategic, operational, geo-political, and treasury risk strategies as part of an overall GRC and ERM program.

## Developing a Commodity Risk Management Strategy

Commodity risk management requires that organizations provide an integrated view across commodities that rolls-up into a broader risk management program. Organizations developing a strategic and integrated approach to commodity risk management are aiming to achieve . . .

- **Sustainability.** Risk managers require a sustainable process and infrastructure for ongoing management of commodity risk on a continuous basis – commodity risk is highly volatile and requires continuous monitoring and validation. The dynamic nature of business, supply chains, and commodity prices and availability demands that an organization develop a sustainable commodity risk management program.
- **Consistency.** Commodity risk has historically and ineffectively been managed across silos that do not integrate into a holistic view of enterprise risk. The complexity of business requires that commodity risk management be part of an integrated enterprise risk management framework.
- **Efficiency.** The line-of-business is fighting back because of redundant and non-integrated risk processes that handicap the business. GRC aims to ease the burden on business by leveraging common control monitors, processes, assessments, and information.
- **Transparency.** Ultimately commodity risk management is needed to require greater transparency into key-risk indicators so that the organization can monitor its financial health, take advantage of commodity opportunity, avoid fraud, and avert or mitigate disaster.
- **Accountability.** In the end, someone is accountable to manage commodity risk. The organization brings all of this together to measure the effectiveness of commodity risk management and to provide accountability (whether positive or negative) to those who oversee it.

### *Core elements of a commodity risk management strategy*

Success in risk management begins with a strategy – how to effectively manage risk across the organization. This ties into frameworks such as COSO ERM, AS/NZ 4360:2004, or ISO 31000. Whatever framework or standard used – there are fundamental core elements to managing a commodity (or broader enterprise) risk strategy. The core elements of a risk management strategy are . . .

- **Risk intelligence.** Risk management is about reducing uncertainty so that the business is not caught by surprise and is prepared for any situation it confronts. Good information – intelligence – is what reduces uncertainty. Organizations need to understand their commodity price and supply risk (and market) at a detailed level. This involves making sourcing strategies that reflect risk. The organization needs to be able to assess the commodity market, identify potential conditions/uncertainties, and define key risk indicators to manage uncertainty and predict outcomes impacting the organization.
- **Risk collaboration.** Risk management that operates in a silo is not effective. To be effective, commodity risk management requires a range of stakeholders that can provide their input and insight into commodity risk issues and provide for the transparency the organization needs. Good collaboration also provides integration and oversight with both accounting and compliance scrutiny to avoid issues with regulators.
- **Risk modeling.** Risk management requires that the organization build commodity risk models and scenarios. This defines where points of failure or uncertainty are and predicts what can happen to the business.
- **Risk calculation.** Risk management then uses the models to calculate and score the risk across a range of models. Model your commodity risk exposure. This can be done across a range of value at risk (VaR) models utilizing analyses

such as Monte Carlo simulations.

- **Risk strategy.** Risk management then impacts business strategy. The commodity risk valuations and business impact should turn into decisions to accept, avoid, transfer, or mitigate risk. This allows the organization to effectively react to uncertainty and market fluctuations.

All five of these elements – risk intelligence, collaboration, modeling, calculation, and strategy – tie together to effectively manage commodity risk as an ongoing process and component of an enterprise ERM and GRC strategy. This often results in hedging, and it is only through these five elements that organizations can feel secure in their hedging efforts. Otherwise hedging is really gambling. The goal of hedging is to insure against commodity risk and it requires intelligent risk strategy decisions to be effective. The goal is to provide predictability and not be surprised by changes.

## *Linking commodity risk to corporate performance*

It all gets down to the bottom line. Commodity risk is not an academic exercise that happens in some vacuum in finance – it is something that needs to be intimately tied to corporate performance and objectives. Corporate performance management is tightly related to risk management in financial reporting. When done correctly performance and risk management are two sides of the same coin.

Every commodity risk indicator should be mapped to corresponding corporate performance indicators. The goal being - if the . . .

- Market moves in favor of your organization - you make money, or
- Market moves against your organization - you preserve value.

## Commodity Risk Management Architecture

Organizations looking to manage commodity risk start with defining their commodity risk management architecture as part of their enterprise risk management architecture. This requires that the organization deploy an infrastructure and supporting processes that deliver real-time commodity transparency across the business and its relationships. Effective management of commodity risk requires data and visibility across the business.

Today, organizations manage commodity risk in different systems (or even spreadsheets) that are not integrated. Under this scenario, organizations will struggle to get a full picture of the risk it faces. An isolated view does not allow an organization to look at the entire exposure in a consolidated manner.

Core to a commodity risk management architecture is the ability to provide multi-commodity risk management that allows an organization to manage across its commodity risk areas. An organization benefits from a common platform for commodity risk management as it provides the ability to monitor risk across commodities, provide integration and visibility, and as a result produce greater transparency into intricate risk relationships.

Core elements of a commodity risk management architecture include:

- **Counterparty risk management.** The organization needs complete visibility to manage and monitor counter party risk. This includes functionality that allows the organization to manage business relationships through a complete understanding of collateral and credit risks to that relationship.
- **Operational risk management.** Organizations require the ability to track movement of commodities and to track transactions across supply chains. This includes fully integrated views into supply chain tracking so the organization

can identify where inventory is and where it is moving.

- **Price risk management.** To facilitate compliance with trading and credit limits the organization needs an integrated platform architecture which manages and monitors price risk and ties it to key-performance and risk indicators.
- **Compliance management.** The architecture should allow the organization to demonstrate and validate compliance to FASB 133, IAS, and other hedge accounting and compliance regulations. The ability to validate compliance is necessary because the organization may consider something as a hedge but it not be valid to be accounted for as a hedge. Strong compliance management capabilities should allow the organizations to control swings in P&L, which is critical for public companies.
- **Risk intelligence.** Organizations require the ability to track internal as well as external commodity risk data to monitor exposure, predict losses, and manage to commodity risk metrics of key-performance and key-risk indicators.
- **Real-time architecture.** The ability to manage commodity risk demands that the architecture be real-time so that calculations, metrics, positions, and their impacts on P&L are displayed up to the minute for complete transparency and accuracy across the business.
- **Integration.** The success of a commodity risk management architecture depends on its ability to integrate with other business systems. The architecture should be able to feed the general ledger/accounting systems and the planning and forecasting systems, as well as being able to take in information from external market sources.
- **Robust audit trail.** Non-repudiation is core to any management architecture for risk and compliance. The system should have complete integrity and accountability within the audit trail to identify what happened, why it happened, and who made it happen.
- **Process management.** The architecture is to support business process management through streamlining the management of the commodity risk processes. This includes integrating alerting and workflow capabilities into the architecture.
- **Position management.** The platform architecture is also to provide complete accounting of commodity positions and trades. This requires that other core functions of integration and real-time architecture be in place.
- **Dashboards & reporting.** The architecture is complete with a robust management module that allows access by varying roles and provides the needed information that is relevant to the role requesting it.

Unfortunately, most commodity risk management solutions do not deliver on the range of these core elements. Instead, most platforms deliver parts of this – particularly around specific commodities and do not provide a single platform for the range of commodity risk issues. Other organizations have failed in this architecture as they rely on spreadsheets to deliver their commodity risk management architecture. Spreadsheets do not deliver on the range of these elements and are a recipe for errors and disaster in risk management.

Organizations need to consider commodity risk platforms that have a holistic and integrated view across commodity risk management – such as Triple Point Technology which delivers trading and risk management solutions for commodities including power, oil, gas, coal, metals, agricultural products, freight and biofuels. Their Commodity XL™ platform manages the dynamic requirements of physical and financial markets, integrates front-to-back office, and delivers the core architecture functionality for the supplying, trading, marketing, and moving of commodities on a single platform.

## About Corporate Integrity . . .

*Corporate Integrity is a research advisory firm providing leadership in education, research, benchmarking, and analysis on the issues and corresponding solutions for corporate governance, enterprise risk, and compliance management.*

Through ongoing research, interactions, and benchmark analytics, Corporate Integrity is the authority in understanding how organizations can foster a culture that “walks the talk” – where integrity is central to governance, risk and compliance (GRC) practices. Corporate Integrity educates organizations and GRC professionals on achieving sustainability, consistency, efficiency, accountability, and transparency in their corporate GRC practices.

In addition to helping organizations understand and improve their internal GRC processes, Corporate Integrity assists technology providers and professional service firms in aligning their sales, product, service, and marketing strategies to the requirements of the roles responsible for GRC.

With the deepest GRC expertise and understanding available in the market, Corporate Integrity has developed a range of service offerings to assist organizations, GRC professionals, technology vendors, and professional services firms focused on GRC.

## About Michael Rasmussen . . .

Michael Rasmussen is the authority in understanding Governance, Risk, and Compliance (GRC). He is a sought-after keynote speaker, author, and collaborator on GRC issues around the world and is noted for being the first analyst to define and model the GRC market for technology and professional services.

With more than 15 years of experience, Michael’s objective is to assist organizations in defining GRC processes that are sustainable, consistent, efficient, transparent, and accountable. His thought leadership is tuned to:

- **Educate** GRC professionals within corporations to identify, understand, and analyze GRC strategies, drivers, trends, and best practices;
- **Assist** technology providers with alignment of their product and marketing strategies to the needs and requirements of GRC professionals; and
- **Collaborate** with professional services firms on their portfolio of GRC service offerings to better equip them to serve their respective clients.

A leader in understanding risk and compliance standards, frameworks, regulations, and legislation, Michael aims to improve corporate integrity through advancing GRC initiatives. He has served in leading roles in public policy contributions to US Congressional reports and committees, and currently serves on the Leadership Council and Steering Committee of the Open Compliance and Ethics Group. Michael has been quoted extensively in the press and is respected for his commentary on broadcast news channels.

In June 2007, Treasury & Risk recognized Michael as one of the 100 most influential people in finance with specific accolades noting his work in “Governance and Compliance: Saving the Planet and the Corporation.” Most recently, in October 2008, he was recognized as a “Rising Star in Rocky Times: Corporate America’s Outstanding Executives Under the Age of 40.”

During his career, Michael has worked in the market analyst, consulting, and enterprise sectors. Prior to founding Corporate Integrity, Michael was a Vice-President and top analyst at Forrester Research, Inc. Before Forrester, he led the risk consulting practice at a professional services firm in the Midwest. Earlier, his career included industry experience in healthcare as well as manufacturing.

Michael’s educational experience includes a Juris Doctorate as well as a Bachelor of Science in Business.