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Championing Transformation – Opportunities for Bold, Strategic Moves

The instinctive response to a fragile spell in the economy is, for any organization, to scrutinize headcounts, rapidly shed cost and position the business to respond flexibly to the inevitability of new changes. Now, how does one rapidly deliver the immediate benefits of reduced operational costs and increased operational efficiencies, while also ensuring that the business is able to exploit the eventual upturn? By carrying out a unified and integrated transformation exercise in the form of agile thinking, solutions and services, a collaborative work culture, and optimized processes and technology.

Transformation emphasizes value realization for customers. Encompassing innovation strategies to manage risk and take advantage of new opportunities, a transformation framework should include operations, talent and finance management. Built on a firm foundation of open architecture, and the implementation of readily deployable low cost implementations, it can deliver rapid returns.

It is easy to propound theories on transformation. But are they workable in practice? An example of what TCS did in the last year was to redefine operating models through which we remained close to our customers; focus on increased productivity, efficiency, agility and risk management; apply technology for increased collaboration and information sharing (TCS Co-Innovation Network – COIN™); leverage partner capabilities to create intellectual property; and, innovate with new business models to create value. Relationship longevity and quality were also vital—be it with our customers, employees, investors, or partners. We took on the business imperative of nurturing and developing talent and human capital in the organization with renewed efforts.

This transformation paradigm is embedded as ‘transformation intelligence’ in the solutions we develop for our customers. We strived to create a customer-focused organization based on the brand promise of experience certainty, reflected in our readiness to solve our customers’ most challenging problems. We benchmarked the value realized and measured and validated it against the best in the industry. For instance, we enabled State Bank of India to create the world’s largest homogenous banking network spanning 14,000 branches and more than 170 million accounts, and SEI Investments in USA to deliver next-generation wealth and investment processing across 53 markets worldwide. On the other hand, at Community Alliance Credit Union, we helped consolidate multiple, diverse brands onto a single platform, delivering increased asset growth. In step with ever-changing business models, we provided Link Up Markets with a cross-border securities transaction processing solution in eight months and enhanced productivity levels at Societe Generale by 40 percent through a centralized payments processing hub.

Keeping in mind the space we operate in—financial services—our transformation framework optimizes transactions and processes for speed of execution and settlement, ease of processing and the reduction of errors. Transaction integrity, real STP, a 360 degree customer view, flexible IT architecture designed for SOA (Service-Oriented Architecture), and minimized operational risks eventually realize higher returns on IT expenditure.

Some of the focus areas in securities processing today are risk management, liquidity, counterparty and market risk. Execution quality, liquidity discovery, and electronic



trading tools to demonstrate value to clients are other vital areas of emphasis. As cost pressures and infrastructure demands intensify, more managers are choosing multiple prime brokers to gain access, for better pricing, geographic reach and services. Clearing and settlement infrastructure providers are going through a phase of consolidation today. And, so are stock exchanges. This again applies pressure on achieving process efficiency and reducing costs. Central clearing depositories (CSDs), apart from settling trades, also act as a link between issuers and holders of securities. They will soon have to incorporate multiple roles into their new models of processing. Creating a communication hub for efficient cross-border post-trade processing between participatory CSDs in a region will fast gain momentum. These new models will in turn throw up more challenges related to risk, which will have to be addressed.

Numerous models and frameworks related to enterprise-wide risk management are being propounded and experimented with today. An organization will have to bring in a culture of being well-prepared, and of being agile and adaptable, rather than merely following mathematical models and industry best practices for risk management. Sound risk management requires executive ownership and a culture of communicating risk openly.

The web will act as a turbocharger of transformation. It was invented to work with any type of business model, thereby, allowing for some really outstanding companies to thrive on it. With new policies on standardized infrastructure for the web and digital communities, highly efficient, competitive virtual marketplaces will soon emerge.

Finally, the categorization of business processes as central and supportive to the overall organizational vision will be a key factor in creating agility—both at an organizational and application level.

In this inaugural edition of the TCS BaNCS Research Journal, 'TCS BaNCS Research Journal', we have compiled research findings that explore perspectives—and prescriptives—for the financial services industry at large. Focusing on several areas ranging from securities markets, to business process management to green IT, you will find a story on transformation emerging here.

Hope you enjoy reading the journal.

Best Regards,



NG Subramaniam

President – TCS Financial Solutions
Tata Consultancy Services



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Capital Markets – An Evolving Framework

Even as global markets learn some harsh lessons and look for innovative ways to manage new challenges and shifts, there are some clear insights emerging for all players. Sri Sundar – Vice President, Product Strategy, TCS Financial Solutions, shares some thoughts on the reshaping of capital markets and the market makers.

Q: Regulators in the securities industry believe that central clearing of credit default swaps will reduce counterparty credit risk. What are your opinions on CCP?

Extensive debates and opinions about improving counterparty risk management mechanisms and CCPs have emerged since the credit crises and resultant dislocations in financial markets. Certainly, a CCP will reduce the underlying risk, especially the kind that we witnessed during the Lehman bankruptcy, almost leading to the near demise of AIG. A CCP can guarantee that counterparties have the required collateral (cash or securities) deposited with the CCP. It will value derivative positions, probably on a daily basis and based on the liquid nature of the positions. While a CCP will reduce counterparty risk for Single Name Credit Default Swaps and Credit Default Index trades, it does not solve some of the issues that we saw during the credit crisis, namely, CDO and CDO², especially with mortgages as underlying assets.

Most of these instruments are traded through SPV (Special Purpose Vehicles) and there is no true market transparency for these trades. It remains to be seen how the role of the CCP will evolve. If it adopts a stringent policing approach, it may reduce liquidity in the market and have an artificial effect on credit spreads, especially, where credit is needed the most, i.e. Sovereign Debt of emerging market countries. The risk and effects of counterparty default will drive momentum in this area. We can hope that major dealers in the market will help the CCP develop smoothly.

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The level of collateral that would be required by central clearing agencies will be different and probably higher than what dealers use to self-clear. This is certainly bound to create some moments of stress and issues related to leverage and liquidity.
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Q: Where is clearing headed? What are the implications of clearing on broker dealers?

All securities industry participants agree on the advantages of the central clearing model. Risk is definitely at

reduced levels today. Clearing will initially be fragmented by geography, i.e. USA, Europe, though, and could lead to more consolidated frameworks later. The level of collateral that would be required by central clearing agencies will be different and probably higher than what dealers use to self-clear. This is certainly bound to create some moments of stress and issues related to leverage and liquidity. The question still remains on whether market standards for valuing certain securities used for collateral will emerge, or if central clearing agencies will only require cash and cash-like securities (treasuries) as collateral. Fees related to clearing could also cause an area of concern, reducing the profitability of trades. Central clearing will also not provide the best returns on collateral that broker dealers can realize if they were to clear on their own.

Q: The fundamentals of foreign exchange, commodities and emerging markets present significant capacity for growth going forward. What are the trends we will see here?

Emerging markets, which were the growth engines during the global credit crisis, and which played a significant role in lessening its effects, will once again be at the forefront of the demand cycle given the number of development projects waiting to begin. The flow of credit globally will increase the demand for commodities,



especially, industrial raw materials and FX as asset classes. Sovereign governments, particularly, those of BRIC countries, industrial majors, and banks and institutional investors will drive trading activity in these instruments. Retail interest in commodities and FX as asset classes through mutual funds and exchange-traded derivatives will see a revival alongside institutional interest.

Q: Which new asset classes are likely to develop and why?

FX as an asset class, mutual funds with commodity assets and ETFs tracking major commodity and industrial majors in emerging markets could become liquid retail investment vehicles. The ability of investment managers to clearly endow retail investors with the ability to understand the underlying risks involved with these instruments will define the success of these instruments as investment vehicles.

‘Tighter Controls’ are the marching orders for every middle and backoffice operations manager. This entails risk management, pricing and valuation, clearing and settlement.

Q: Fixed Income and OTC derivatives markets are facing significant structural changes: Will Over-The-Counter (OTC) products take a back seat to exchange-traded products?

During the credit crisis, both high-grade and high-yield corporate bond

markets were under tremendous stress; not to mention credit derivatives linked to these assets. The near-bankruptcy of credit-guarantors or the monoline insurers and the loss of faith in rating agencies have had far-reaching and lasting impact. The primary or the issuance market cannot come back to normal levels unless investors regain confidence in the fundamentals of the market, i.e. the veracity of rating agencies and stability of the insurers. Institutional investors are the key liquidity providers for the Fixed Income and OTC market, and these markets will continue to thrive as the economy improves. Most of these products cannot be replicated on exchanges due to the risk that they carry and the strategic nature of institutional investing. In short, the OTC market will be back once risk-taking is in vogue again but certainly not at levels that we saw in 2006 and early 2007.

Q: Will investor interest in hedge funds (HF) survive and rebound? What will be the key factors to HF returns going forward?

As evident in the rise of markets all over the globe, there is significant cash on the sidelines waiting to be invested. In fact, investors fearing such dramatic peaks in the market begin taking profits more frequently. Given the reduction in the hedge funds either because of bad performance or due to fraud, the survivors seem to be good targets for high net-worth investors. The jury, I believe, is still out on the fund-of-funds industry. Their value, especially, in coming out of the crisis is suspect, although, painting the entire industry with a

common brush may not be right. There is significant opportunity as the market revives for large returns, especially in terms of M&A, leveraged buy-outs, elimination of bad banks (short selling), bankruptcies, and potential CMBS crisis, which are sweet spots for the unregulated hedge fund industry. Investors certainly need to look for some really stable hedge funds, and some very experienced managers.

Real-time compliance checks and real-time trade reporting to custodians will necessitate a tight, robust STP infrastructure, not only within an institution but include trading venues, custodians and, potentially, regulators.

Q: Distressed Debt and Infrastructure are believed to be at the forefront of new assets as a result of ample supply and heightened interest among a wider range of players. Can you comment on this trend?

Distressed Debt has always been a specialized asset class meant for the brave of heart and only for those investors with well-proven pricing and risk analytics to help value and manage these positions. There is significant supply in the market, especially from the debt that arose from leveraged buyouts, commercial mortgage lending and high-yield loans that became more distressed during the credit crisis. This



market is and always has been only for seasoned players. Since this type of debt is generally not replicated in the Total Return Swap or Credit Default market, investors can gain exposure only through outright purchases and, therefore, need to make significant credit loss positions in their balance sheets. Given that insurance companies are risk averse, this market will remain subdued.

Q: The evolution to a more modern capital markets infrastructure will speed up the pace of IT spending. What is the way forward for IT solutions related to risk management and compliance, advanced trading architecture, electronic execution, STP and cross-asset investment strategies, among others?

'Tighter Controls' are the marching orders for every middle and back-office operations manager. This entails risk management, pricing and valuation, clearing and settlement. All the gaps that became evident during the crisis now have to be plugged through strengthened operational processes and significantly improved IT infrastructure. Risk management will be key to this controlled environment. Valuation and pricing software will seek more validated market data inputs for more reliable outputs. Lessons learnt from the crisis would have to be used for better VAR calculations. Trading strategies will seek more pools of liquidity for execution. Pools trading FX, rates will become more popular amongst institutional investors. Real-time compliance checks and real-time trade reporting to custodians will necessitate

a tight, robust STP infrastructure, not only within an institution but include trading venues, custodians and, potentially, regulators.

Cross-asset strategies i.e. combining equity, rates, debt and FX would involve building secure and reliable bridges between silos for each of these asset classes that exists in an institution.

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Q: What are the challenges for IT vendors, especially in terms of supporting business growth and operational efficiency of customer organizations?

Core principles are still valid, viz., scalability, reliability, and processing efficiency and reduced TCO, compared to internal development and ownership. Over and above this, IT solution providers and applications, especially those that support middle- and back-office operations, need to be able to connect with multiple venues, comply with multi-country regulatory requirements and process multi-assets, including OTC derivatives and the most liquid, interest rate swaps. They must interoperate with multiple trading systems, both homegrown and vendor supplied, and sometimes with more than one application for a single asset class.

Q: How will IT solution providers manage diverse technological requirements in the new universal bank model?

SOA (Service-Oriented Architecture) seemed to be the silver bullet that took on and addressed this problem head on. Though the adoption of SOA at a concept level had been complete within the IT organizations of banks, implementation of SOA has lagged way behind, i.e. SOA services have not been provided and, in some cases, the SOA services created were not consumed. SOA-compliant solution providers can now bridge this gap by playing the role of an intermediary or by consuming SOA services and developing native, customized interfaces to internal bank systems that are currently non-SOA compliant. Another prerequisite for vendors would be to fine-tune their solutions to run efficiently on Linux and Intel platforms and target reduced TCO (Total Cost of Ownership).



Sri Sundar

As Head, Product Strategy, Sri Sundar manages product development with a strong emphasis on market research and current and future requirements of customers. He is also involved in strategic co-development initiatives with customers. He has over 23 years of experience in derivatives product technology and operations in major investment banks.



Balancing Risk and Innovation in OTC Markets

Introduction

The first currency swap deal took place between IBM and the World Bank in 1981. IBM had issued DEM (Deutsche Marks) and CHF (Swiss Francs) bonds that it wanted to withdraw, and instead issued USD (US Dollar) denominated bonds. The USD had appreciated against DEM and CHF, and IBM wanted to take advantage of this. At the same time, the World Bank wanted to withdraw its USD debt, and instead borrow DEM and CHF in order to lend to its customers in these currencies. These operations however, would have involved high transaction costs for both IBM and the World Bank. In order to avoid these costs, IBM and the World Bank agreed to enter into an arrangement whereby:

1. IBM initially bought CHF and DEM, and gave these to the World Bank, and the World Bank offered an equivalent amount of USD to IBM
2. During the term of the deal, IBM paid the World Bank USD, using which the World Bank serviced its obligations, and in turn, paid CHF and DEM to IBM, using which IBM serviced its obligations
3. At the end of the deal, IBM and the World Bank re-exchanged the currencies that they had given each other in step 1. Using these amounts, IBM and the World Bank paid off their original obligations.

A market for Swaps had been created.

Credit Default Swaps – Creating an Environment for Hedging Risks

The Credit Default Swap (CDS) emerged from efforts to mitigate credit risks as well as to free up statutory capital requirements imposed on banks. A financial institution that lends money is normally required by regulators to keep capital in reserve in order to protect its stakeholders if the loans go bad. In 1994, during an “off site” weekend in Boca Raton, Florida, some J P Morgan employers were grappling with the problem of freeing up these reserves and also mitigating their credit risk at the same time. The result was the now infamous CDS. This financial instrument allows an institution (the protection buyer) holding a bond to make a series of payments to a protection seller who will pay an agreed upon amount to the protection buyer if the issuer of the bond defaults. The CDS thus acts as a kind of insurance that mitigates the risk of the bond issuer defaulting, while also allowing credit risk to be transferred from the financial institution holding the bond to the protection sellers. CDS originated in the Over the Counter (OTC) markets, and continues to be traded in these markets. As we can see, the market for Swaps has been created by need felt by multinational organizations and lenders like the World Bank, and other financial institutions, to effectively hedge their risks. Any such innovation will naturally have to take place in a closed environment and will hence be in an OTC form.

OTC Markets – A Cradle for Innovation

By definition, innovation is a break from the established way of doing things. The two financial innovations considered above came into existence by proposing specific solutions for specific problems. Once these solutions proved to be successful, many other financial institutions packaged these products into tradable forms, and offered them to their clients. By offering them in the OTC markets, financial institutions are able to customize them to precisely meet client needs, and are also able to provide their clients with anonymity. A bank that loans money may want to buy protection against credit risk. However, if this fact were to become public, it could damage its relationship with its client. It can also raise doubts in the minds of other market participants about the credit worthiness of the client. There are thus very valid reasons for trading derivative products in OTC markets. If used prudently, CDS make more credit available, and this can serve as an engine of economic growth. If Currency Swaps had been banned, IBM and the World Bank would have incurred wasteful transaction costs. The point is that even the much maligned products that have contributed to the current financial crisis have the potential to make positive contributions to a society's well being, and therefore a blanket ban on OTC derivative products may cause more harm than good.



There are also substantial disincentives to developing innovative products for trading in exchanges. Any innovative pricing or structuring will be readily available for all to see and replicate. The first-mover advantage that would accrue to the creator of a product would thus dissipate rapidly. Financial products are not physical products – they often deal with ideas. One way a financial institution can hope to benefit from its ideas is to try and keep its pricing models and its deal terms away from its competitors by trading in OTC markets for as long as it possibly can. A pharmaceutical company that invests in R & D in order to come up with a new drug is afforded patent protection. Similar protection is currently not available to financial products. If these institutions are mandated to trade all their products in exchanges, they would have very little incentive to invest in the resources needed to create innovative solutions for their clients, and create sophisticated solutions to manage their risks.

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One way a financial institution can hope to benefit from its ideas is to try and keep its pricing models and its deal terms away from its competitors by trading in OTC markets for as long as it possibly can.
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Secondly, organizations and even retail investors who have little knowledge of these products and their concomitant

risks will be led to invest in them thereby creating a societal risk. Hence, it is necessary to standardize products and create detailed market education programs before they can be moved to a listed form.

Yet another reason why mandatory exchange trading of all derivatives may not be a good idea is that it would discourage fund managers from trying to get the best possible returns for their clients. For example, a fund manager might, after diligent analysis, come to the conclusion that a certain company is over extending itself and its credit rating is likely to fall in the future. The manager can buy the company's bonds (which are likely offering a high yield) and then use CDS to protect himself/herself against a credit event. If this fund manager's actions become known to every one else, they would also carry out a similar exercise. As they do this, the price of the bonds would rise, as would the cost of getting credit protection, thereby reducing the effectiveness of the strategy. What is good for one, if replicated by every one else, ends up being good for no one. To paraphrase an example from an economics text book by Paul Samuelson, one person can get a better view of the stage by standing on her toes. However, if everyone stands on their toes, no one is better off than before. If all OTC trades go through an exchange, special benefits that accrue to individuals as a result of their better-than-average analysis are lost.

Finally, OTC markets also provide for some leeway in the area of infrastructure investments, since initial volumes are very low for these products. One

can agree to conduct deals on the phones and track them by keeping paper records if trading frequencies are low enough, and there are not too many external reporting requirements.

But OTC markets come with huge concomitant risks, as recent events have shown. The risks involved became visible too late to prevent a meltdown, which unfortunately had a global impact because of the high volume and value to which these transactions had grown. Not moving OTC trades to exchanges hence presents its own set of problems. For one thing, the recent financial crisis was precipitated to a large extent by unregulated and frenzied activity in the CDS markets.

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Risk management models that are based on the assumption of non correlation between credit events are likely to yield wrong results.
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CDS allows financial institutions that do not own a bond to take a view on the issuer's credit risk by buying or selling credit default protection. Since the trades are not regulated, authorities cannot know how much protection has been sold, and whether the protection seller has the ability to honour its commitments in case of a credit event. Consider, for example, the case of AIG, which was a major CDS protection seller. If it had defaulted on its obligations, all institutions (no one is perfectly sure just who these institutions were) that had bought protection would have



been affected. Credit events are unlike most insurance events. They may be sparked by market events, and it is quite likely that they are strongly correlated. Most insurance events, on the other hand, are likely to be uncorrelated. So risk management models that are based on the assumption of non correlation between credit events are likely to yield wrong results. However, the opaque nature of the OTC trades made it impossible to find out just how the protection sellers were managing their risks, and led to systemic market risks that threatened the viability of the financial system across the globe.

The financial crisis led to a liquidity crisis as credit markets froze for a period of time, and precipitated a global economic slowdown from which the world is yet to recover. It is also arguably true that CDS protection holders may have had a role to play in the recent GM bankruptcy filing. GM bond holders and hedge funds who had bought CDS protection are likely to receive substantial payouts as a result of the bankruptcy. They would therefore have had fewer incentives to influence GM to come up with alternative solutions. While GM may eventually emerge a stronger company, in the interim jobs and pension benefits may be lost, and much pain will have to be endured.

OTC Markets – The Way Forward

The need of the hour is therefore to find a way of continuing to foster innovation in the financial markets while curbing the excesses that inevitably result from operating in totally unregulated markets. It is reasonably evident now that self-regulation has not worked very well in financial markets.

OTC derivative trades by virtue of their anonymity, huge leverage, and global nature of operations can affect the real economy in very real ways. For example, excessive trading in commodities can increase prices and cause grave difficulties to people who may be very far removed from the OTC markets. While OTC participants might eventually find ways to standardize and regulate their trades and risk mechanisms, regulators face the task of ensuring that before this happens, the global financial system is not extensively and irreparably damaged.

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**OTC markets are a
cradle for innovation,
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While considering the regulation of OTC derivatives markets, regulators need to differentiate between trades that are speculative and those that are required for hedging purposes. Perhaps they can limit the volumes of trades that take place in OTC markets, and require that above a certain threshold, institutions have to declare the details of their trades, and, if necessary, trade in regulated exchanges. Banning some kinds of OTC trades for specific periods of time also seems to be a reasonable option; however, such bans cannot be blanket bans. They need to be rationally justified and carefully exercised, all the while monitoring the market conditions that originally led to the ban being promulgated.

In addition to regulatory solutions, governments can also examine the

possibility of providing incentives to market participants not to engage in opaque and risky trades. Many financial products were created to override government regulations – for example, pension funds cannot normally own high yield bonds, but if subprime mortgages are packaged into tranches and the highest quality tranche is assigned a AAA rating by a rating agency, they can suddenly participate in subprime markets and enhance their portfolio returns! So it is quite conceivable that the financial community will come up with innovative ways to overcome the proposed regulations. There is hence a need to drill down to the basics in ratings, but it is difficult to put a rule on how many layers one has to peel before one is sure about quality. However, if economic and other incentives that encourage responsible behaviors are provided to market participants, they might be more willing to embrace regulations in letter and spirit.

We are also noticing a trend in which Central Clearing Houses are offering clearing services for OTC derivative products. For example, LCH. Clearent, the UK based clearer, has been offering SwapClear for clearing interest rate swaps, for the past ten years. Recently, the CME and Intercontinental Exchange (ICE) have come up with plans to offer clearing services for Credit Default Swaps. A Central Clearing House essentially inserts itself between the counterparties to the original trade, and becomes a counterparty to each of them. Initial margin is collected from each counterparty, and positions are marked to market on a daily basis. This arrangement allows for better risk monitoring, and prevents a cascade



effect when one of the counterparties with a high exposure defaults, and has recently proved its mettle.

A model involving OTC trading and central clearing thus seems promising. Such a model can be readily applied to standard OTC derivatives products, but extending it to complex structured products will prove to be more difficult. The clearing house will need to thoroughly understand the risks involved, and develop suitable procedures to monitor and manage these risks. Over time, the clearing houses and OTC market participants will no doubt be able to implement the right risk models, but in the interim some mechanisms have to be put in place for centrally monitoring trade volumes and risk. Regulatory authorities could consider requiring OTC participants to provide details of their trades, while guaranteeing them anonymity.

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Over time, the clearing houses and OTC market participants will no doubt be able to implement the right risk models, but in the interim some mechanisms have to be put in place for centrally monitoring trade volumes and risk.

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Move Towards Alternative Trading Systems

The recent financial crisis has also prompted moves towards alternative

trading systems (ATS). Improvements in information and communication technologies (ICT) have enabled and facilitated this move. These improvements in ICT can also lead to the interlinking of the ATS by means of standardized communication protocols, and thus reduce market fragmentation in the ATS space. An interlinked platform developed with inputs from the major OTC market participants can thus potentially provide a viable alternative for executing OTC deals.

OTC markets are a cradle for innovation, and in all likelihood, will continue to be so. They help clients – including all kinds of corporations and even some government bodies – to efficiently hedge against commodity and currency volatility. The need, therefore, is to continuously and effectively monitor OTC trading volumes in different products. After trading volumes and notional amounts cross pre-defined thresholds, trades could be standardized in some form, and moved to a Central Clearing House in order to mitigate the risks involved. Depending on further market requirements, one could then consider moving these trades to organized market places.

Clearly, the present financial crisis has led to a move towards more streamlined and transparent market places. It has highlighted the problems involved in allowing closed OTC markets to grow unmonitored, and has led to productive debate amongst market participants and regulators across the globe. We believe that out of all this, a stronger and more robust global financial system will emerge – one that will continue to encourage innovation while

also providing market participants with incentives to act responsibly. It will also result in the creation of stronger centralized Capital Market Infrastructure. There is growing belief that the next decade will be the decade of central clearing, CCPs and real-time risk management as a result of the financial crisis. If it really turns out to be one, with clear guidelines on when innovation gets standardized and moves to organized market places, then it is unlikely that we will see a similar crisis again in our lifetimes.



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Multi-Asset Trading – Seeking Alpha in Trading

The line between asset classes is fast blurring. With the emphasis on consolidation, enterprise-wide risk and compliance, there is an increased need for an integrated risk profile across an organization and its asset portfolios. Innovation in the marketplace is usually driven by technology and regulation, competition and necessity. Today, in an era where change is the only certainty, innovation is driven by change.

There are many opinions about multi-asset class trading. But before we delve into the influencers for a multi-asset platform, let us understand what multi-asset trading actually means. It is the trading of multiple asset classes across a common infrastructure for smart trading flows, and improved efficiencies and customer service, while maintaining low latency, high-throughput message transfer in a scalable manner. The trend in today's trading environment is towards increasing profits and diversifying risks, and therefore the need to access multiple asset classes from a single system. With a millisecond being the difference between a successful or failed trade, these systems need to offer fast and secure electronic trading. The second definition of the term is linked to cross-asset trading. It works by trying to borrow the trading style from one asset class to another; for instance, using the algorithmic framework from cash equities for FOREX trading.

Environmental Factors that Demand such a Solution

Faced with reduced transaction fees, exchanges today wish to add more

asset classes and leverage existing infrastructure to equip themselves with competitive advantage. As exchanges compete with each other across geographies, markets are forced to adopt a multi-asset approach, especially with technology. Further with the increased merger and acquisition activity, exchanges are being built around function rather than on asset class. Multi-asset trading on a single exchange allows investors to leverage lower cross-margin requirements.

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For efficient multi-asset class trading, technology, processes and knowledge need considerable changes. But the real challenge lies in the human element as it demands deep insights and capabilities across the complete trading spectrum.

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The buy side is making rapid strides in trading sophistication. Equipped with the latest electronic trading systems, it has moved to diversify investment portfolios from equities primarily to other asset classes in the quest for alpha. With the buy side looking at trading in other asset classes, it is also driving the sell side to structure itself to offer multi-asset trading. Buy

side wants their broker dealers to offer multi-asset trading capability for smart order routing according to asset class or liquidity sources.

Again with brokerage commissions decreasing for the buy side, brokers need to sell more asset classes to the buy side to gain a greater share of the market. Previously, the Fixed Income and FOREX markets were over the counter and negotiated trading was the norm. However, even Fixed Income and OTC markets are becoming increasingly electronic therefore making it easier to trade these assets using trading platforms.

The rise of algorithmic trading has also contributed to the drive towards multi-asset trading as orders can be routed to multiple liquidity pools without human intervention. With the evolution of algorithms from alpha-generating to alpha preserving, and the third and fourth generation liquidity-seeking and hedging algorithms, the demand for new technology that accommodates access to multiple asset classes is vital.

Changing Cultural Mindset before the Technology

For efficient multi-asset class trading, technology, processes and knowledge need considerable changes. But the real challenge lies in the human element as it demands deep insights and capabilities across the complete trading spectrum. Traversing technology changes involves connectivity to multiple exchanges with different interface



capabilities and algorithms that are portable from one asset class to another. Further, in some countries, assets (for instance, equities and commodities) are regulated by different government bodies and this could lead to potential conflicts. This becomes even more complex when trading is conducted across geographical borders.

In a nutshell, traders might continue to work with those parts of the market that they specialize in, but with a consolidated multi-asset trading platform that facilitates liquidity access, enterprise-wide risk and trading compliance, including order execution and management. Such a system can reduce errors, streamline workflows and add an Alpha to trading.

TCS Financial Solutions spoke to few of our customers to gain some of their insights on multi-asset class and market trading trends. Here is what they had to say:

Senior Executive, Leading Securities Organization: There is one thing that is common across the ever-changing landscape of the finance streets across the globe. The buy side is in constant search for alpha, in reducing trading costs, and improving execution while the sell side is trying to keep pace with tougher execution expectations in an increasingly fragmented market place.

Electronic trading was the inflexion point for trading platforms and created the background for quantitative strategies to emerge. These trading platforms initially worked on a single market and asset class. It is from here that trade automation tools emerged providing cost reduction, risk management and sophisticated trading capabilities. From here emerged algorithmic trading—a process which synthesizes the activity

of a skilled human trader executing trades with speed and precision.

The search for Alpha in all kinds of market conditions made it compelling for fund managers to invest across asset classes and geographies. As they traversed markets, asset classes, currencies and time zones, it was a natural progression to apply the high-speed, high-volume, low-touch strategies to the same security type in other markets or asset classes.

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The ability to cross-margin, settle and account for trades often through different clearing houses is a crucial question that needs an answer.

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Another innovation in the form of Direct Market Access provides access to markets and asset classes from a trading desktop. Multi-asset trading is an answer to the need of the buy side but faces several hurdles in the form of regulations, risk management, and the ability to achieve end-to-end integration between front- and back-end processing.

Asset bubbles driven by excess liquidity, lax regulatory oversight and players betting on the short term and mortgaging their organizations in the long-term resulted in the credit crunch. And, no amount of trading sophistication could have prevented the damage created. When the direction is wrong, having a car that goes very fast actually puts you at a greater distance from where you want to be.

Director, Equity Sales, Leading wealth management and brokerage company:

The genesis of the credit crisis can be attributed to greed, lax regulatory standards and credit oversight. The main instruments leading to the credit crisis were Credit Default Swaps, which are OTC derivatives where there is a risk of counterparty default. It is highly improbable that IT systems could have prevented this crisis. The only way to prevent the crisis would be to shift the OTC derivatives to an exchange-based platform.

Q: On the challenges in building a multi-asset platform from a technological, functional and regulatory perspective

Senior Executive, Leading Securities

Organization: Disparate asset classes, markets, currencies and time zones make integration a challenge on a trader workstation. Sheer geographical and human limitations make it difficult for a trader to simultaneously work different screens. An ability to stitch multiple assets in multiple geographies together is crucial at the front end. Algorithms will have to evolve beyond the volume and time-slicing variety and the sell side firms will have to develop and deploy sophisticated algorithms with different 'what if' scenarios to access dark pools of liquidity. The ability to cross-margin, settle and account for trades often through different clearing houses is a crucial question that needs an answer as it will work truly only when the customer gets a seamless trading experience.

Further regulations pose a big challenge, with multiple legal entities and exchanges in a region.



Director, Equity Sales, Leading wealth management and brokerage company:

Multi-asset trading is not a new phenomenon. However, adopting a 'one size fits all approach' may have its limitations in terms of the functionality offered. Multi-asset trading may not face regulatory-related challenges due to multiple regulators for different asset classes. The only challenge would be in having structured products involving asset classes governed by different regulators.

Multi-asset trading would be more preferred by the smaller buy side/sell side firms who have resource constraints. Large investment banks would have specialized teams for different asset classes. Each team would have its own priorities thus making it difficult for a multi-asset platform to serve their needs.

Q: On multi-asset platforms being restricted to the front-office with middle and back offices still operating in silos

Senior Executive, Leading Securities Organization:

This could be a start as back offices can be integrated in a true sense when the necessary regulatory changes and integration of margining and settlement processes across asset classes are carried out. Until then, the buy side may get front-end access to multi-asset platforms but will have to settle each trade in silos, resulting in cross-asset trading not being an immediate option.

To sum up, a multi-asset platform could well be a case where technology has outrun regulations, and the brokers understanding and ability to manage risk, and the customer's ability to manage and gain from complexity. It may not be an idea that will immediately

Benefits of multi-asset trading

Onboarding of clients at a single place

Consolidated view of portfolios for customers, and consolidated view for the enterprise for better risk management

Benefits of Cross-margining

Collateral use across asset classes

Risk manager get a consolidated view of clients leading to better risk management

change the trading world, but it certainly is a force that will shape the future direction of trading.

Director, Equity Sales, Leading wealth management and brokerage company:

To begin with it, these platforms would be restricted to the front office and mainly to client interfaces. The next phase would to have a single, integrated back-office clearing and settlement solution for multiple asset classes. The real challenge would be in building a middle office, which enables risk management across asset classes, and uses collateral across asset classes and cross-margining.

Traders might continue to work with those parts of the market that they specialize in, but with a consolidated multi-asset trading platform that facilitates liquidity access, enterprise-wide risk and trading compliance, including order execution and management.

Conclusion

Although there is a long way to go before multi-asset systems with necessary functionality are in place, there is no taking away the fact that they are the future of trading. Given the undeniable advantages of multi-asset trading: increased revenues for exchanges and brokers, better returns, more diversification and enterprise risk management for the buy side and more leverage because of lower margins due to cross-margining for investors, the market will soon enforce the creation of multi-asset trading platforms.



Shekar Hegde

Shekar Hegde is Head of Pre-Sales, Securities Trading, TCS Financial Solutions. Shekar comes with over 10 years of experience in Banking & Capital Markets with IT product vendor companies. He has extensive exposure to the entire trading life cycle from pre-trade to clearing and settlement.



Developing a Risk Management Framework: Moving from Silo to Enterprise

The securities industry is still in the business of risk, but the global financial turmoil has revealed that securities and investment firms did not avoid risk sufficiently. Thus, revamping risk management is clearly a top priority for firms throughout the securities industry, from retail brokerage firms to exchanges. TowerGroup is often asked which areas of risk management are top of mind for securities and investment firms. This article outlines those priorities, discusses the types of risks

that the securities firms of various types are grappling with, and then suggests an approach to improve risk management. Securities and investment firms will eventually revert to assuming risk, but they will need new tools, processes, and procedures to do so effectively.

Assessing Risk in the Securities and Investments Industry

TowerGroup has created a matrix rating various types of risk based on their

likelihood and potential impact on the various kinds of securities firms. The first chart below displays TowerGroup's comparative assessments of the significance of each type of risk faced by the main participants in the securities and investments industry.

Each firm must identify, measure, and mitigate the risks it faces. Risks of high significance require greater financial and technology investment, attention, and oversight. The highly significant

TowerGroup Securities & Investments Industry Risk Matrix

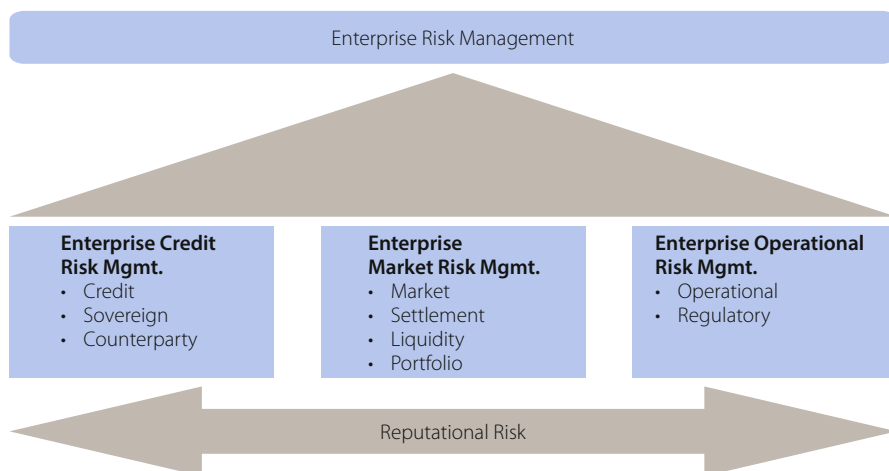
	Credit	Counterparty	Liquidity	Market	Operational	Portfolio	Settlement	Sovereign	Regulatory	Reputational
Retail Broker-Dealers										
Registered Investment Advisors										
Institutional Broker-Dealers										
Execution Venues										
Traditional Money Managers										
Hedge Funds										
Universal Banks										

Source: TowerGroup

Key: Low Significance High Significance



Enterprise Risk Management: Building from Existing Parts



risks are the ones that could jeopardize a franchise.

Revamping risk management is clearly a top priority for firms throughout the securities industry, from retail brokerage firms to exchanges.

The 10 risks rated in the matrix require increasing attention from senior management and more resources (human, financial, and technological). Though of course these are not the only risks an institution faces (technology risk and vendor risk are also worthy of note), they are the risks that TowerGroup believes are most important to measure and mitigate. The risks overlap, making it difficult to isolate a single risk type. In addition, the categories of risk converge more now than in previous times. Credit default swaps epitomize this convergence: Because they are created and valued based on the debt of a company but their prices fluctuate

during the trading day, market and credit risk intersect for these securities. Because of such overlap and interaction, all risks need to be addressed in aggregate. Creating a methodology to assign priorities for risk management requires analysis of the potential damage the realization of a risk would entail.

Risk Management will have to Change

The complexity and interconnectedness of risk will force institutions to reevaluate their risk management processes and technology. The first step is to identify all the types of risk a firm faces. The second step is to assign the highest priority to mitigating those risks that could most damage the firm. To unify and maximize their firm's risk management efforts, risk officers at any securities and investment firm need to consider a holistic approach to risk management. The next chart outlines a model for building an enterprise risk management application from the component risk management solutions.

The significance of each risk for an organization dictates the components,

level of confidence, and timeliness of the firm's enterprise-level risk reporting. The level of technology and human resource investment needs to be calibrated according to both the likelihood and impact of the risk types. The multiple forms of risk assumed by an institution need to be viewed as interconnected. Yet the information on risk exists in multiple platforms, comprises different measures, and is based on unique assumptions. The creation of a unified enterprise risk management system allows senior managers to correlate risks across the information and business silos. The increase in visibility results can identify troubling positions and activities, measure the impact of corrective actions (including the impact of doing nothing), and improve decision making.

An incorrect inventory of positions may encourage a bank to incorrectly increase or decrease its exposure to an asset class or security. Operational risk must be managed in conjunction with credit risk.

Successful risk management begins with understanding the risks an organization faces and determining which ones have the potential (i.e., the likelihood and impact) to cause lasting harm. As a firm identifies areas of concern, it needs to inventory and assess the usefulness of its technology, processes, and procedures in mitigating



each type of risk. Even if a securities and investment firm already has the right tools in place to manage highly significant risks, it needs to bolster management of other risks in a way that contributes to a view of the enterprise's exposure overall. Once again, rather than a singular process, risk management should be a compilation of tools and techniques designed to account for interconnected risks. For example, operational risk is a driver of credit risk. Trades that are "lost" in the accounting platform or valuations data that is late will lead to poor reporting and poor decision making. An incorrect inventory of positions may encourage a bank to incorrectly increase or decrease its exposure to an asset class or security. Operational risk must be managed in conjunction with credit risk.

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Best practice includes identifying technology components that are highly interoperable, building the process that best utilizes the tools, implementing a robust data management paradigm, and promoting a culture of risk management throughout the organization.

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Many vendor-supplied tools exist for managing both specific risks and enterprise risk. Although no one application can provide for risk management

for a larger, diversified securities firm, the components already are available. Best practice includes identifying technology components that are highly interoperable, building the process that best utilizes the tools, implementing a robust data management paradigm, and promoting a culture of risk management throughout the organization. Forcing risk managers of silos to account for activities in other business units will increase communications between the silos.

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Applying a framework for identifying the most significant risks, understanding how the risks overlap and interact, and analyzing risk at the enterprise level will not only put a securities firm in the position of addressing the most urgent risks today but also better prepare the firm for what may come tomorrow.

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Summary

The continuing credit crisis has revealed deficiencies in a broad spectrum of areas of the securities industry, including regulatory structure, economic assumptions, and, of course, risk management. In order, to survive the credit crisis and then be able to thrive in the new securities world that will follow,

securities and investment firms must evaluate and improve their risk management processes and technologies.

Every firm will need to assess its processes and technologies to determine which risks could most damage the enterprise. Retail securities firms have to ensure their reputation remains intact so they can gather and retain client assets. Buy side institutions are facing volatile markets that make generating returns all the more difficult. Sell side institutions will have to manage liquidity risk very closely. The myriad risks faced by universal banks are challenging to even the most effective risk manager. Applying a framework for identifying the most significant risks, understanding how the risks overlap and interact, and analyzing risk at the enterprise level will not only put a securities firm in the position of addressing the most urgent risks today but also better prepare the firm for what may come tomorrow.



Stephen Bruel
Research Director - TowerGroup

Stephen Bruel is a Research Director in TowerGroup's Securities & Investments practice. He focuses on the strategic impact of technology in the institutional securities industry, addressing technology, operations, and business issues. Stephen Bruel can be reached at sbruel@towergroup.com.



Enterprise Operational Risk Grows Up

Operational risk is often a catch-all term for any risk that is non-financial in nature. Although it continues to be discussed under the pretext of the recent financial crisis and in the context of regulations (Basel II, SOX, AML/KYC), it is not a new discipline. In our recent surveys of firms regarding their risk management priorities, we could see that firms responded to increasing internal training and education in order to draw out lessons learned from the financial crisis, increase the ability to identify and assess risks, and to meet corporate

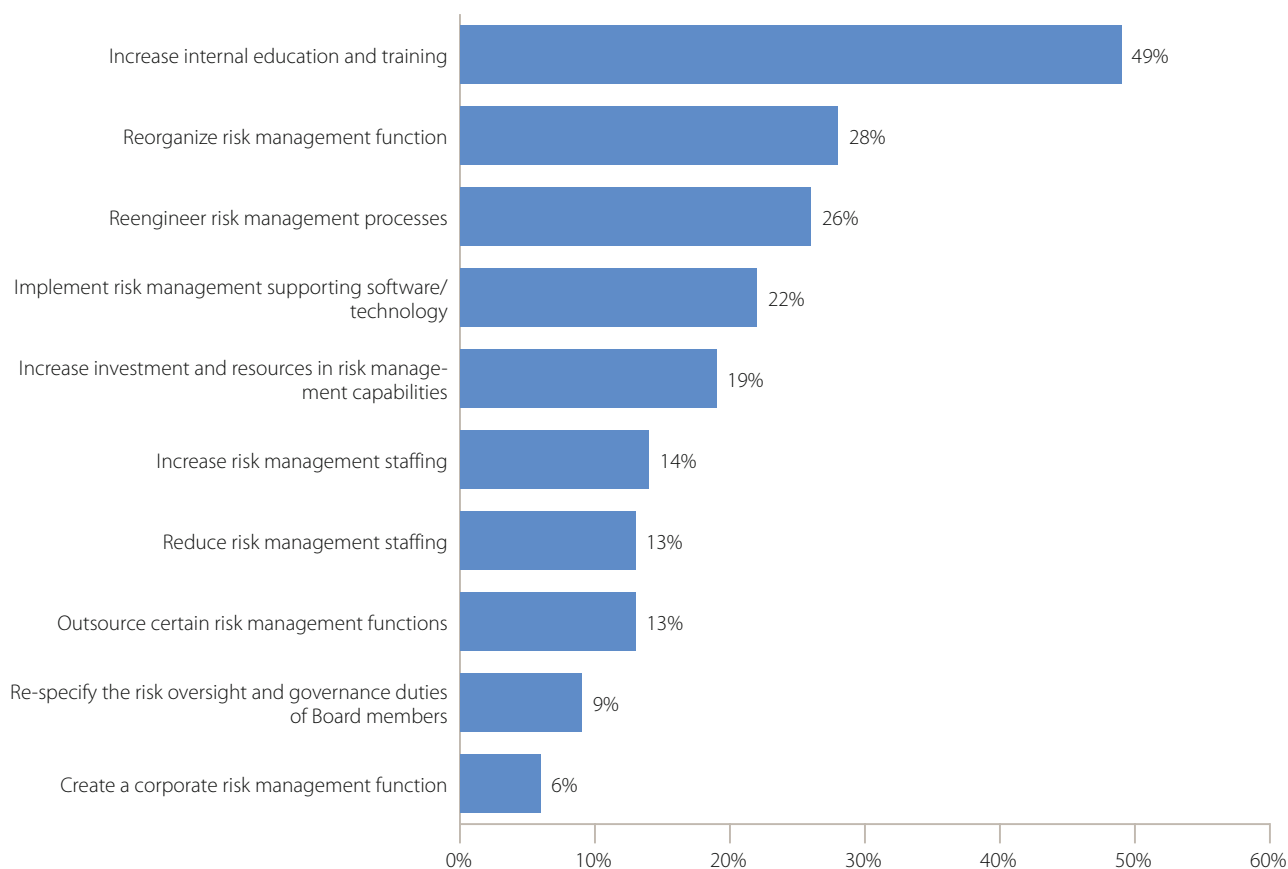
strategic goals by ensuring that risks are explicitly considered in business decisions. Management accountability, an improved ERM program, and more resources devoted to risk management were the other common responses.

Even as risk management disciplines continue to evolve, the following are key points to bear in mind when implementing enterprise-wide operational risk and governance programmes:

- **Implement operational risk frameworks and tools in a way**

that affects and influences behavior. The big question here is: How much do risk processes influence action within the various departments and business lines? The most important element in addressing operational risk is not so much the assessment activities, technology or the risk models – it is what you do with the information and how behavior is affected, in order to reduce risk. Obvious as this may seem, strong operational risk departments realize that execution

Focus areas for the risk management function in 2009



Source: Oliver Wyman, Marsh 2008/2009 Risk Management Survey



is the key and good theory often does not mean good practice.

- **Focus on risk indicators that are predictive, not just the historic.** Part of an operational risk programme will often involve the implementation of key risk indicators (KRIs). In designing these KRIs, there is a need not only to make it measurable and actionable, but also to provide the predictive capability in order to anticipate rise in the drivers that produce risks, especially for high-frequency and high-severity risks.
- **Converge operational risk techniques and tools to ensure that loss data, risk assessments, risk indicators, and remedial actions are linked up in a coherent framework.** In order to have the capability for enhanced analytics and simulations (e.g. for advanced operational risk approaches), it is important for the various pieces of the picture – the activities related to defining loss data distributions, risk indicators, self-assessment scoring and remedial actions management – to be coupled closely together. This means that categorization mechanisms for the underlying risk types/events need to be flexible and consistent across multiple systems for loss data capture, issue logging, and control self-assessments, as well as in the definition/reporting of KRIs.
- **Beware of correlative and cascading scenarios that span multiple risk categories.** With operational risk becoming a separate discipline in its own right, caution needs to be exercised in scenarios where there are risk linkages between operational risk and other forms of market, credit and asset/

liability risks, which could translate into a domino effect. As operational risk covers broader areas compared to market and credit risks, it is important not to silo functions, assessment activities and controls too narrowly. As an upshot to this point, there are also important implications related to the functionality and technology integration between various market, credit and operational risk systems to ensure that ‘cascading’ risk scenarios are adequately covered.

With operational risk becoming a separate discipline in its own right, caution needs to be exercised in scenarios where there are risk linkages between operational risk and other forms of market, credit and asset/liability risks, which could translate into a domino effect.

- **Adopt open practices of consolidating intellectual capital and disseminating knowledge.** For an organization to reach a state where risk management practices are pervasive (what some practitioners call a “risk-aware culture”), a critical part of managing operational risk has to do with creating internal “knowledge communities” to identify, share, learn and improve on both loss / near-loss events and risk practices. Business units need to be encouraged to open up without the fear of consequences.

At the fundamental level, the infrastructure for knowledge consolidation, sharing and dissemination needs to be present, together with the knowledge management processes and organizational incentives. The ability to integrate, extract and use insights from internal and external operating environments will be a key success factor in adding value to the broader organization and building an intelligent risk management function.

With regulation and shareholder pressures already high, there is growing acceptance amongst more sophisticated institutions that the systemic execution of risk management activities in tandem with core operational functions helps drive process improvements – and in the end, results in better governance and performance at all levels and business units. All things considered, managing operational risk using an integrated approach represents the flip side of adopting good governance practices.



Mayiz Habbal

Mayiz Habbal is Senior Vice President of the Securities & Investments Group at Celent and is based in the firm’s New York office. His areas of research focus on enterprise architectures and aligning business strategy with IT initiatives. He brings with him over 15 years of experience in the management and development of software and engineering of IT strategies, predominantly in the investment banking industry.



Towards a Converged Payments Hub

Across the world, banks and financial institutions of every size are heading back to the strategy tables to re-think their payment processing systems. They are driven by numerous catalysts, including rapidly growing electronic transfers, changing customer expectations and fast-evolving regulations and frameworks such as SEPA and ISO20022.

In response to these challenges, banks are busy revamping their payments infrastructure and investing heavily in upgrading legacy systems.

As they do this, banks must address a critical debate: should payment systems continue to differentiate between wholesale and retail payments? After all, to a clearing and settlement mechanism, a payment regardless of where it originates. Ideally, then, wholesale and retail payments should converge into one integrated, seamless, payments hub that supports the entire payments value chain, as well as the full range of payment types including electronic transfers, direct debit, cheques, SWIFT payments or Internet payments.

On the ground, however, banks already own a maze of legacy systems, addressing different payment types and varied components of the retail and wholesale payments chains. Perhaps, more importantly, at most banks, the wholesale and retail divisions are often politically divided, with differing objectives and priorities. Banks must also consider the potentially high cost of convergence, weighed against the shrinking margins of the commoditized payments business itself. Little surprise then, that a converged payments hub

Table: Key Requirements - Retail & Wholesale Payments

Payments Value Chain*		
	Retail Payments	Wholesale Payments
Client Acquisition	- Standard conditions-based agreement - Standard front desk	- Customized conditions and negotiated packages - Strong focus on relationship management
Payment Initiation	- Alternative non-bank methods - Wide range of channels - Individual approval and authorisation - Mostly unitary orders - Simple validations - Limited & simple products	- Reliance on banking methods - Limited channels - Complex approval and authorisation process - Multiple orders and bulk - Complex validations - Complex products
Payment Processing	- Standard security and user entitlements - High volumes - Compliance checks (AML/OFAC) - Mostly standard pricing - High volume of domestic & low volumes of international transfers - Standard exception management	- Standard security & user entitlements - Medium-to-high volumes - Compliance checks (AML/OFAC) - Customized pricing - Medium-to-high volume of domestic & medium volume of international transfers - Customer exception management
Clearing & Settlement	- Rule-based routing - Standard formats - High volume of exceptions - Standard CSM functions	- Rule-based routing - Standard formats - Medium-to low volume of exceptions - Standard CSM functions
Payment Management	- Customer service - simple queries - No/low level of auxiliary services - Standard reporting	- Customer service- complex queries - High level of auxiliary services like reconciliations, tax reporting, collections services - Rich & customized reporting

*Source: TCS FS Knowledgebase - customer interactions & payments initiatives undertaken by financial institutions worldwide



is not yet a priority, although it promises great long-term benefits including lower costs, reduced risks, higher efficiency and better customer service.

Again, in situations where some firms may cease to trade, real-time liquidity, positions, exposures and reconciliation are more vital than ever. Besides, a single view of liquidity across global currencies helps banks and companies to use funds optimally, and an integrated payments solution will support 'chase the sun' strategies. By standardizing the payments value chain, a financial institution will be able to either outsource this function to specialized providers, or turn itself into a specialized provider of this service to other institutions.

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A crucial challenge in designing a payments hub is in ensuring in-built flexibility to manage new conditions, such as new products or regulatory requirements.

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Clearly, then, a converged payments hub is the holy grail of payment systems; but banks need not aim for a readymade solution or an overnight migration. Rather, each organization should move towards this goal in the way that best balances its immediate and long-term priorities, its unique needs, its legacy systems and budgets. Yet, the right time for a bank to draw up a convergence roadmap is when it first begins to re-think its payments infrastructure, so that it can eventually

achieve convergence in the easiest and most cost-effective way.

Analysing the Payments Processing Value Chain

An excellent way to design a convergence blueprint is to identify a set of services that are common across wholesale and retail payments, which can easily be consolidated into a single payments hub. By examining the life of a payment when processed (see the table), its different phases and steps can be translated into enterprise components. Some of these can be converged right away, while other components can be added in later. Thus, a good payments hub can immediately begin exploiting the similarities between the two types of operations and build in the flexibility to accommodate those features that differ.

As the table shows, the clearing & settlement link of the payment chain is almost identical for the wholesale and retail businesses. The payment processing link is also similar, although rules will have to be set up to accommodate the differences, such as customized pricing for wholesale clients versus standard pricing in the retail segment. Therefore, these two links can be consolidated onto a single platform on a payments hub. Other areas, however, cannot be addressed by rules and require dedicated solutions. For example, the branch will remain the main access channel for wholesale payments, along with dedicated internet service portals and cash management channels. In contrast, retail payments have a much wider range of channels, including mobile phones and internet shopping sites. A hub must accommodate such

differences but also include several, common generic components such as:

- A centralized repository for definition and routing rules, for processing all incoming and outgoing instructions, rather than multiple entry and exit points for different types of payments
- A common service integration layer with adaptors for external protocols

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Each bank must clearly define its own vision for a hub, identifying the products the hub will cover, the services it will provide, the maintenance cost, the expectations of different user groups, and the measurable business benefits it will provide.

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- A centralized risk management layer
- A homogeneous definition of the steps in the life cycle of payment transactions, such as authentication or funds checking, regardless of whether they are for retail or wholesale transactions
- Common workflow and exception management, with clear definitions of processes such as funds availability, and of permissible exceptions, although the defined parameters will vary for wholesale and retail transactions



- A non-redundant, centralized payments transactional data layer, providing a common database in a standard format
- Common clearing and settlement for wholesale and retail payments

Challenges in Realizing a Payments Hub

In building a robust payments hub, banks must navigate several challenges. First, each bank must clearly define its own vision for a hub, identifying the products the hub will cover, the services it will provide, the maintenance cost, the expectations of different user groups, and the measurable business benefits it will provide. Top management should articulate this vision and ensure that stakeholders from various organization units get on board, a substantial challenge in itself. Next, the organization must identify the internal skills required to analyze the existing value chain and systems, identify the migration paths and define and implement the hub. Alternatively, the bank must be able to in-source the relevant specialists such as payment architects or business process analysts.

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The payments hub should incorporate architectural frameworks that integrate as many existing components as possible.

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Another challenge is in managing existing technology differences. Since it is

rarely possible to replace all related legacy systems, the payments hub should incorporate architectural frameworks that integrate as many existing components as possible. A good payments hub would use Service-Oriented Architecture (SOA) to allow the hub to interconnect different systems inside and outside the organization. For example, the hub should be able to easily connect to the bank's account management and customer information systems to check the validity of accounts and customer agreements.

A crucial challenge in designing a payments hub is in ensuring in-built flexibility to manage new conditions, such as new products or regulatory requirements. An effective payments hub must avoid a rigid architecture. Instead, it should incorporate components based on rules and parameters that can be changed and added to. Thus, the hub will remain flexible, and be able to accommodate future changes easily, without changing applications.

Multiple Benefits

A well-designed and integrated payments hub offers multiple benefits:

- It provides a single operational view of all payment operations, allowing banks to better understand their business, reduce blind spots and improve risk management
- It allows centralized risk management and compliance
- It provides unified transactional data, improving business analysis

- It allows optimized distribution of payment orders, enabling economies of scale
- It helps banks understand new business opportunities or areas of inefficiency, through this unified data and better distribution
- It provides a valuable differentiator in improving customer service by helping banks to provide a homogeneous customer experience across channels, to offer customers richer, value-added information and a single view of their transactions and liquidity positions
- It reduces operational costs by improving efficiency and reducing redundancies

As banks embark on the journey towards the goal of a converged and integrated payments hub, then, they can be sure that they will reap rich rewards.



Nitin Sirohi

As Product Director for the Payments solutions, TCS BαNCS, Nitin Sirohi leads the product management and delivery of product releases. Nitin Sirohi comes with 14 years of experience in providing IT solutions to the banking and insurance sectors.



Demystifying Corporate Actions Administration Challenges - The '3M' Triad

Corporate Actions Challenges Affect One and All

To mitigate the risks of delivering incorrect and untimely information, securities firms continue to invest in corporate actions information capture and processing solutions. But due to the lack of global standards, error-prone manual processes, diverse communication protocols and increasing volumes, it has always been an arduous task for market players. On one side of the value chain, depositories, depository participants and custodians have direct liability for accurately disseminating information. On the other side, asset managers, broker dealers, investment banks and hedge funds use corporate actions as a service level differentiator. On both sides, the corporate actions requirements point to Straight-Through Processing, or STP.

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To gain the maximum benefit, financial services firms have to take a "3M Triad" approach: Minimal development time, Market-ready flexible features and a Mature functional & technical platform.

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Financial institutions and vendors alike have long pursued a vision of

industry-wide STP in corporate actions through automation. Yet because markets have not settled on a single framework or standard for corporate action types and structures, this vision has not been truly achieved. For automation in corporate actions to become a reality, the industry will have to promote the adoption of improved data formats on a global scale.

Industry-wide and local initiatives have succeeded in bringing about a higher level of standardization and automation, and developments in this direction have already delivered enormous benefits in cost reduction, risk mitigation and efficiency improvements. Yet these benefits have been withered by peculiarities stemming from local market practices and differences in the regulatory environment. Also, while the standardization challenge has been borne by the distributors of corporate actions data, much progress remains in standardizing output from the information originator side – the Issuers and Agents.

Standardization Initiatives and Market Practice Groups

The financial services industry has taken significant steps towards bridging these geographical and market structure gaps. ISO-based SWIFT messaging standards play a crucial role in providing an electronic mechanism and a standard template for data transfer. These continually-maturing

standards include a growing range of data elements and event types from all markets. Specifically, the SWIFT-sponsored Securities Market Practice Group (SMPG) and National Market Practice Groups (NMPGs) in over 35 countries have a big role in creating and coming up with standardized processing practices across markets. These groups have taken steps to reduce the differences between major market practices and global market practices through such actions as creating Event Interpretation Grids (EIGs) and DvE (Sequence D versus Sequence E) validations.

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With a corporate actions processing product based on global benchmarks and supported by deep understanding of industry processes, financial institutions can meet the unified objective of "de-risking corporate actions administration".

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However, the mere availability of new standards and message types doesn't guarantee operational and cost efficiencies. To gain the maximum benefit, financial services firms have to take a "3M Triad" approach: Minimal development time, Market-ready flexible



features and a Mature functional & technical platform.

These elements of the “3M Triad” depend upon top-quality execution of data migration, implementation of proven change management processes and the selection of a committed partner with impeccable credentials and a solid track record. With a corporate actions processing product based on global benchmarks and supported by deep understanding of industry processes, financial institutions can meet the unified objective of “de-risking corporate actions administration”.

An Innovative Solution

A solution that supports multiple vendor feeds across a full range of formats, providing a single platform for data scrubbing and a clean “golden copy” that powers complete downstream corporate actions processing is the need of the hour. Business users gain the ability to better manage corporate actions processing through intuitive dashboards and metrics. Clients, portfolio managers, and financial advisors

can gain from a Web-based view of corporate actions with elections capture to bolster the value-added services that a firm offers its custody clients.

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By measuring the STP rate on a consistent, standardized basis, not only will market participants increase their STP rates for corporate action processing platforms, but also drive performance enhancement and risk monitoring.

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Towards Corporate Actions Benchmarking

Global standards ensure that the best ideas generated in one market are disseminated across all markets with widespread institutional support. With standards comes the possibility for the

development of global benchmarks for corporate actions. By measuring the STP rate on a consistent, standardized basis, not only will market participants increase their STP rates for corporate action processing platforms, but also drive performance enhancement and risk monitoring.

Given the complexity of the marketplace, innovative thinking and continuous focus can go a long way in automating corporate actions processing.



Manmohan Singh

Manmohan Singh represents the Corporate Actions Solution in the TCS BaNCS financial platform. He has vast experience in delivering complex solutions for customers across the globe.



Building a New Financial Order

Toward Transparency and Sustainability

How will the financial markets industry make money in the future? The current financial crisis has exposed the problems with creating and exploiting “pockets of opacity” across the system. If the industry is to deliver sustainable returns, it will have to embrace change. It will need to begin by working with regulators to build a financial system that is stable while still allowing for healthy innovation. Individual firms will also have to specialize and learn to fulfill their brand promises.

The global financial markets industry has been experiencing significant turbulence over the past 18 months, and executives in the sector are understandably nervous. The current crisis is transforming the competitive landscape, how the industry operates and the way in which its clients behave. Given these changes, many senior executives are wondering how their firms will make profits in the future. This is the question the IBM Institute for Business Value set out to answer in its latest study of the sector.

We conducted a survey of more than 2,700 financial services industry participants to determine four things: Which forces are disrupting the industry? What will clients be willing to pay for? How will the basis for competition change? And what steps should financial services firms take to prosper over the next three years? In short, where's the money? We supplemented our findings with in-depth interviews with

185 executives and government officials, extensive secondary research and quantitative modeling (see sidebar, Study methodology).

For the past 20 years, the financial markets industry has profited by capitalizing on “pockets of opacity” – i.e., creating, buying and selling complex products, often via lightly regulated entities.

IBM's analysis shows that, for the past 20 years, the financial markets industry has profited by capitalizing on “pockets of opacity” – i.e., creating, buying and selling complex products, often via lightly regulated entities. However,

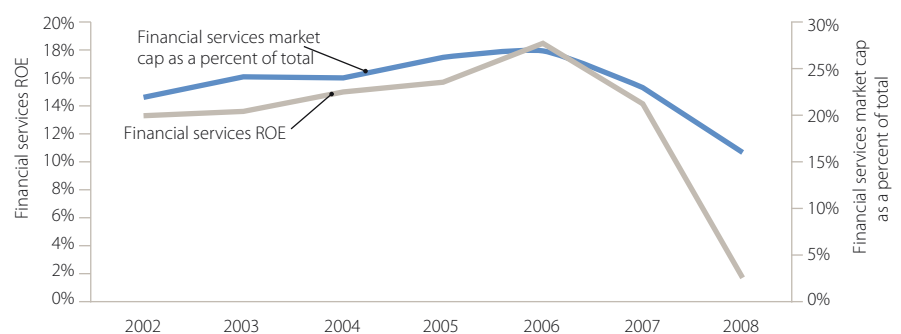
this does not produce sustainable value. Using sophisticated financial instruments and structures can indeed generate very high returns, but it also results in more extreme risk assumption and mitigation cycles and makes the markets much more volatile. If the industry is to thrive in the future, it will have to adopt a different approach. Specifically, it will have to:

- Join forces with regulators to develop a framework that balances stability with innovation
- Deliver what it promises
- Solve its identity crisis.

Where did the Money come from?

Any attempt to understand how the financial markets industry can make money in the future has to begin with an analysis of how it has done so formerly. Where, in other words, has the money come from in previous years? In fact, much of the wealth the industry

Figure 1: Annualized returns on equity in the global financial services sector as a percentage of total market capitalization, 2002-2008.



Sources: IBM Institute for Business Value analysis of data from Standard & Poor's; MSCI Barra; Thompson ONE Banker; Yahoo Finance. Note: Return on Equity (ROE) is for retail and wholesale banking, investment banking and capital markets, asset and wealth management and asset servicing.



Study Methodology

The IBM Institute for Business Value surveyed 2,754 industry participants, including 1,076 individual investors and 1,678 executives and government officials, to determine how financial markets firms should prepare for the future. The survey, which was undertaken with support from the Chartered Financial Analyst (CFA) Institute and Economist Intelligence Unit (EIU), was conducted between September 1, 2008, and April 1, 2009. It incorporates the views of representatives from a wide range of organizations:

- Buy side (institutional and retail asset management firms, including private banking firms, defined benefit and defined contribution retirement plans, endowments and foundations, hedge funds and sovereign wealth funds)
- Sell side (investment banking and capital markets firms)
- Processors (wholesale and retail banks, custodians, exchanges, alternative trading systems and clearing firms)
- Other (governments, regulatory bodies, academic institutes, think tanks and industry associations).

Thirty-three percent of the respondents are based in the Americas; 35 percent in Europe, the Middle East and Africa; and 32 percent in Asia. Eighty-five percent of those who work for financial markets firms are board-level executives, executive vice presidents or divisional directors. The remainder includes directors, senior vice presidents or vice presidents.

has generated during the past decade has come from creating and exploiting “pockets of opacity” and leveraging heavily to magnify the returns.

Two examples illustrate this trend: the proliferation of sophisticated financial instruments such as over-the-counter (OTC) derivatives; and the rise in the value of the assets held outside the traditional banking system. Between December 1998 and December 2007, the total notional amount of outstanding contracts in the global OTC derivatives market soared from US\$80.3 trillion to US\$595.3 trillion.¹ The shadow banking system also expanded dramatically. In early 2007, the total value of the assets held by investment banks, hedge funds, triparty agents, structured investment vehicles and other such conduits was roughly US\$10.5 trillion – some US\$500 billion more than the assets held by the entire banking system.²

This increase in opacity served the financial markets industry well for some years. In the early part of the decade, it earned annualized returns on equity of 14-18 percent. But, in 2007, its return

on equity and market capitalization started falling (see Figure 1). Moreover, the bang – when it came – was much bigger than anything that has occurred since the Wall Street Crash in 1929.

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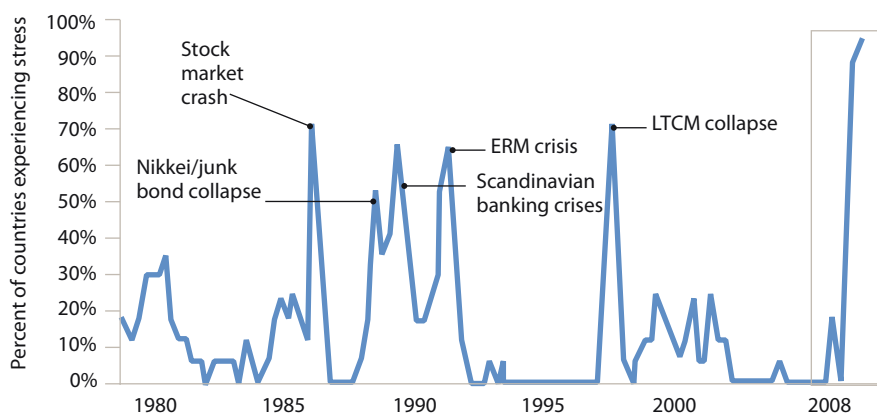
“Have we created an entire generation of disenfranchised investors? We have pronounced confidence destruction that is permanent and will prompt a movement toward physical ownership and away from intangible assets.”

– CEO, Middle Eastern sovereign wealth fund

.....

Both the number of banking crises and their magnitude have been gradually increasing. Between 1973 and 1997,

Figure 2: The impact of systemic risks on 17 mature market countries, measured in terms of financial stress, 1980-2008.



Source: “Financial stress and economic downturns,” World Economic Outlook. International Monetary Fund. October 2008. Note: Financial stress is measured using an IMF-created country-by-country index that includes variables such as interbank spreads and equity and bond market performance.



there were 26 such crises, compared with just 15 in 1880-1913, 18 in 1919-1939 and 0 in 1945-1971.³ The crash that precipitated the Great Depression still remains the worst; between 1929 and 1933, the stock market fell 75 percent from its peak.⁴ But the current crisis has already caused more financial stress than Black Monday; the collapse of the Nikkei; the Scandinavian banking crises in the early 1990s; the breakdown in the European Exchange Rate Mechanism (ERM) in 1992-1993; and the failure of U.S. hedge fund Long Term Capital Management (LTCM) in the late 1990s (see Figure 2).⁵

Increasing Sophistication takes its Toll

Why has the most recent crisis been so painful? In general, recessions associated with banking crises are twice as protracted and twice as intense as those associated with other forms of financial stress.⁶ IBM's research suggests that three specific factors have also played a major role in exacerbating the current situation: namely, the use of increasingly sophisticated financial instruments, the globalization of the financial markets industry and the excessive leverage that resulted.

Between 1996 and 2006, the value of the collateralized debt obligations, asset-backed securities and mortgage-backed securities that were issued rose more than sevenfold, from less than US\$500 billion to nearly US\$2.75 trillion, a compound annual growth rate (CAGR) of nearly 16.8 percent.⁷ The value of the cross-border mergers and acquisitions the industry completed soared from less than US\$100 billion to US\$900 billion, a CAGR of 22.1 percent, over the same period.⁸

Greater use of financial instruments and globalization improved the efficiency of the banking system by facilitating the movement of capital. For example, rather than keeping all the loans they issued on their own balance sheets, the banks could securitize those loans and sell them on to other institutions, thereby liberating capital for further lending. Total cross-border equity and Fixed Income flows increased accordingly; over the past two decades, they have risen at a CAGR of 11.3 percent, outstripping the 9.4 percent by which equity and fixed income assets have grown.⁹

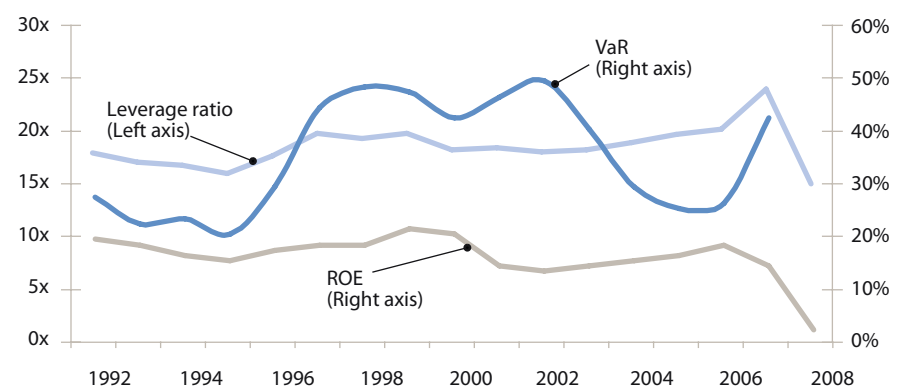
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**"Where is the value?
This is what I want to
know. This industry
is very good at
destroying value,
but not very good at
creating value."**

— Chief Administrative Officer, large
U.S. bank
.....

But these same trends also had several unintended consequences. First, more sophisticated tools for securitizing assets and transferring credit risk, together with rising asset prices and low volatility, enabled the banking sector to borrow more. In 1992, the global average leverage ratio was just under 18:1. By 2007, it had climbed to 24:1 (see Figure 3). However, many of the loans the banks issued were based on collateral values rather than the ability to repay, thereby resulting in an increase in system-wide risk. In 2005, for example, sub-prime and Alt A (lower quality) borrowers accounted for about 40 percent of the mortgages that were originated in the United States.¹⁰

Second, the banks typically retained the worst loans (because these loans were the most difficult and least profitable to sell). That, in turn, increased their exposure to tail risks. But this exposure was very difficult to measure using standard Value at Risk (VaR) models for managing risk, because most such models are based on multivariate Gaussian distribution analysis, which

Figure 3: The relationship among leverage ratios, value at risk (VaR) and returns on equity (ROE) in financial institutions, 1992-2008.



Sources: IBM Institute for Business Value analysis of company reports and data from Thompson ONE Banker. Note: Leverage ratio = tangible assets/tangible equity. VaR = tangible assets*volatility/tangible equity.



cannot capture the impact of systemic dependence among assets.

In short, the origination and sale of complex products on a worldwide scale generated high fees, but it also created a much more extreme cycle of risk assumption and risk mitigation. Most financial institutions are now rapidly deleveraging in an effort to reduce their risk exposure; a record 15 percent of hedge funds, the majority of which were highly leveraged, closed last year.¹¹ Nevertheless, these extreme swings are likely to continue for many years, as the financial markets become more globalized, accentuating the danger that difficulties in one market segment, region or asset class will spread to others.¹²

Where will the Money come from in the Future?

Recent events have clearly demonstrated that the exploitation of “pockets of opacity,” using high leverage ratios to enhance the effect, does not generate sustainable returns; indeed, 90 percent of the industry executives IBM interviewed believe that the returns of the past are over. So where will the money come from in the future?

One prerequisite for success is the creation of a stable financial system that allows for healthy innovation. Without such a system, investors and intermediaries will continue to shy away from the markets. But the industry must also become more efficient, learn how to manage – and profit from – risk and acquire a better understanding of what its clients really want, including how they behave and what they are prepared to pay for. Lastly, individual firms must decide where they want to play. Tomorrow’s winners are likely to be those that specialize and deliver a

first-rate service, rather than trying to do everything themselves.

.....
“Today, regulatory oversight and risk management are not efficient, not rational and not consistent. We now have the opportunity to create a rational and more just regulatory environment.”

– C-level executive, large clearing organization

Working Together to Create a New Financial Architecture

It is essential to build a financial architecture that reflects the increasingly sophisticated environment in which the financial markets industry operates, but that architecture should not be too stifling. Otherwise, the industry will stultify, reducing the returns it generates for its clients, shareholders and governments alike. The industry must therefore work with regulators to create a regime that is sound and yet vital – a regime that can simultaneously

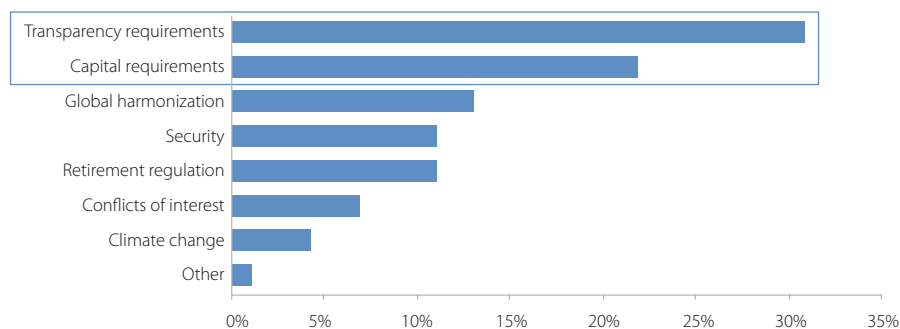
manage the tensions between intense supervision and unbridled opportunism, and between stagnation and boom-bust growth, to deliver sustainable returns.

Many respondents already recognize the need for more stringent regulation. The two main changes they anticipate are greater transparency and higher capital requirements (see Figure 4). However, one of the biggest difficulties in crafting any new regime is likely to be the conflict between politics and policy. The governments of the developed world have already spent more than US\$1 trillion trying to stabilize the global financial system, so they are in a strong position to lay down new rules.¹³ But when political considerations triumph over practical issues, the resulting legislation is often unduly rigid.

.....
“Our biggest concern is that the governments will overshoot as they did with the poisonous regulation of Sarbanes Oxley.”

– Global Head of Derivatives, large U.S. bank

Figure 4: The percentage of respondents who anticipate regulatory changes within the next five years.



Source: IBM financial markets survey, 2009.



IBM's analysis suggests that seven elements will be necessary to create a robust financial architecture that fosters healthy innovation:

- A shared frame of reference among the market participants to build a common understanding of what is important
- Recognition that global collaboration is essential for the "whole" to become stronger
- A rational regulatory regime that balances the principles of the "efficient market hypothesis" with those of the "financial instability hypothesis"¹⁴
- Incentives that balance "returns to society" with "returns to shareholders"
- Leaders who have the will – the commitment to the interests of their clients and fellow citizens, and a sense of shared stewardship – to move beyond today's "herd mentality" and chart a different course
- Transparency, systemic intelligence and proactive management at every level to improve risk management, decision making and the ability to respond in an agile fashion
- Flexible mechanisms that facilitate innovation, as well as the orderly and transparent processing of distressed assets, the unwinding of government ownership, crisis resolution, consumer protection and insurance.¹⁵

It is much too early to predict exactly what this financial architecture will look like. Nevertheless, it is possible to speculate about at least three features. The shadow banking system is likely to become much smaller, so that it will not

jeopardize the entire system. Some of the largest institutions may be required to downsize or dispose of business lines, so that they are "systemically expendable." And new risk management models will prevail.

In addition to managing risk more effectively, firms will have to become much better at pricing risk. It is possible to profit from risk when that risk is properly measured, priced and managed.

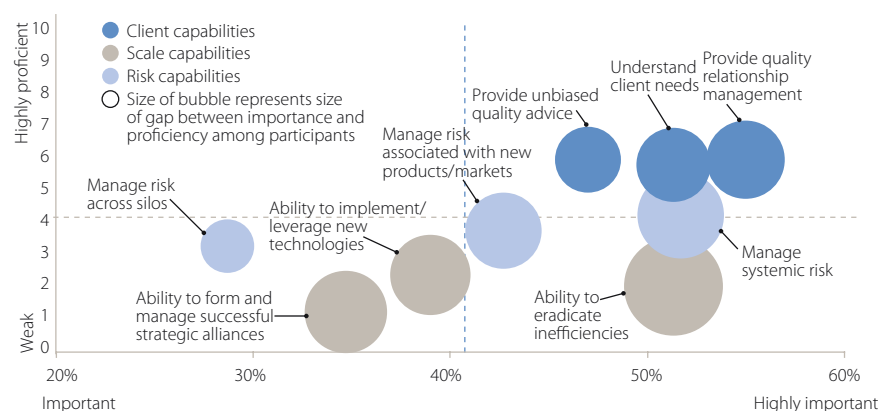
Delivering on Brand Promises

If the financial markets industry is to prosper again, it must also fulfill the promises it makes. Most financial markets firms have brands that implicitly promise to provide agility and stability, and to focus on the interests of their clients. In practice, however, the opposite is often true.

Many of the industry executives IBM surveyed place great weight on various activities that underlie their ability to honor such promises. Yet very few believe that their firms are proficient at performing these activities (see Figure 5). Only 12 percent think that their firms are effective at capitalizing on new technologies, for example, even though 39 percent believe that this is a key attribute. There is an even bigger gap (29 percent) between those who think their firms are effective at forming successful strategic alliances and those who think that the ability to do so is important. Similarly, only 21 percent of respondents believe that their firms are proficient at managing systemic risk, and only 18 percent that their firms are proficient at managing the risks associated with new products or markets, even though 52 percent and 43 percent, respectively, place a high premium on such skills.

The gulf is equally marked when it comes to understanding the needs of clients (23 percent), providing unbiased, high-quality advice (18 percent) and managing client relationships

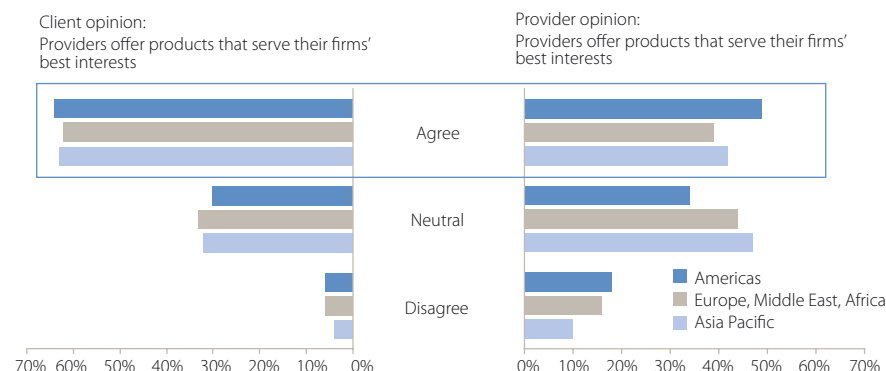
Figure 5: The gaps between the importance financial markets firms attribute to specific activities and the proficiency with which they perform those activities.



Sources: IBM financial markets survey, 2009; and IBM Institute for Business Value analysis. Note: Industry executives were asked to rate the importance of specific activities, and the level of proficiency their firms displayed in performing those activities, on a scale of 1 (weak) to 10 (best-in-class).



Figure 6: Most clients believe that providers offer products and services that serve providers' best interests, a belief that many providers share.



Source: IBM financial markets survey, 2009. Note: Respondents were asked to what extent they agreed or disagreed with the statement that financial services firms were likely to offer products and services that served their own best interests on a scale of 1-6, where 1 = strongly disagree and 6 = strongly agree.

effectively (26 percent). Indeed, a full 80 percent of respondents report that their firms are either weak or only moderately proficient at performing every one of the activities covered in Figure 5.

A significant percentage of financial markets firms are thus neither particularly agile nor particularly good at managing risk, both features that are a prerequisite for providing stable returns. Nor do they really understand what their clients value. In order to redress these deficiencies and deliver what they have promised, such firms will need to become more cost-effective, manage risk more competently and move closer to their clients. Although financial services firms have historically focused on product forms of innovation, firms now have the opportunity to focus innovation efforts on these “basic” operating capabilities. Firms that successfully broaden their innovation focus will be well positioned to maximize returns in the new environment.

They will, for example, have to reduce their unit costs, because the amount of risk they can underwrite relative to the capital they employ will be much lower,

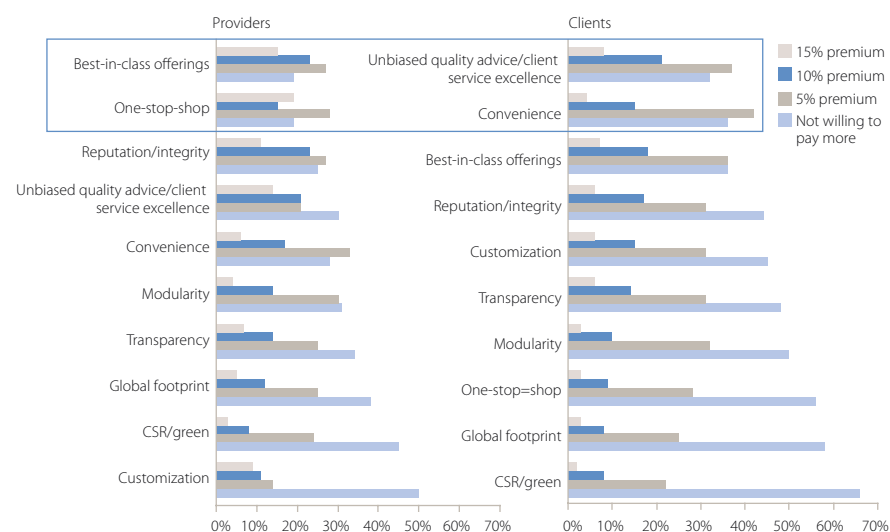
thus reducing their returns. Slashing headcount and closing business lines – the levers traditionally employed when the industry wants to save money – will not be enough. IBM's analysis suggests that most firms will have to cut their costs by another 20 percent, over and above the economies they realize from redundancies and divestitures. Moreover, many of the financial institutions that went through the recession at the

start of the decade have already implemented the most obvious cost-cutting measures. So they will have to focus on realizing economies of scale, integrating their IT more closely with their business strategies and shedding a higher proportion of their non-core activities.

Many respondents have already recognized that such changes will be necessary. More than one-third of those who were surveyed think that their firms will need to adopt a more flexible architecture, optimize their resources and encourage greater sharing of knowledge, for example. Similarly, 60 percent of the industry executives whom IBM interviewed favor outsourcing non-core activities, compared with just 30 percent of those interviewed in previous years.¹⁶

Most firms will also have to rebalance their portfolios to accommodate the increasingly sophisticated environment in which they are operating. In other words, they will have to continuously assess their risks and returns

Figure 7: The services providers believe clients will want most, and the services clients would actually be prepared to pay a premium for.



Source: IBM financial markets survey, 2009.



across each line of business and adjust their business mix accordingly. Moreover, they will have to place as much emphasis on balancing the risks as they do on balancing the returns, rather than concentrating primarily on returns, as the industry has historically done.

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“With firms investing in and using a diverse range of assets from across the world, the right infrastructure will be critical to serve our increasingly global set of clients and to make a profit.”

– CEO, large Asian bank

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In addition to managing risk more effectively, they will have to become much better at pricing risk. It is possible to profit from risk when that risk is properly measured, priced and managed. But, at present, most firms take a simplistic “coarse grain” approach to pricing; they use product-based pricing models and collateral valuations to set their charges. In the future, they will have to develop much more complex pricing models with many more data points and use micro-segmentation to set “fine grain” prices that take account of different interest rates, fee structures, client segment risks and abilities to pay.

Above all, the financial markets industry will have to become much better at understanding and addressing the needs of its clients. More than 60 percent of the institutional and retail investors and intermediaries IBM

surveyed believe that providers offer products that serve their own best interests, rather than those of their clients. What is even more disturbing is that many industry executives agree with them! Some 40 percent of respondents based in Europe, the Middle East, Africa and Asia Pacific think that providers put their own interests first, and the figure rises to 49 percent among executives based in the Americas (see Figure 6). So, it is hardly surprising that many investors and intermediaries no longer trust the industry.

Self-interest is not the only obstacle. Most providers do not even realize what their clients actually want. Asked which financial services they thought would become more important over the next five years, industry executives put best-in-class offerings and one-stop shops at the top of the list. But when investors were asked which services they would be willing to pay a premium for, they ranked unbiased,

high-quality advice and excellent service first (see Figure 7). In fact, 79 percent of executives proved completely disconnected from their clients.

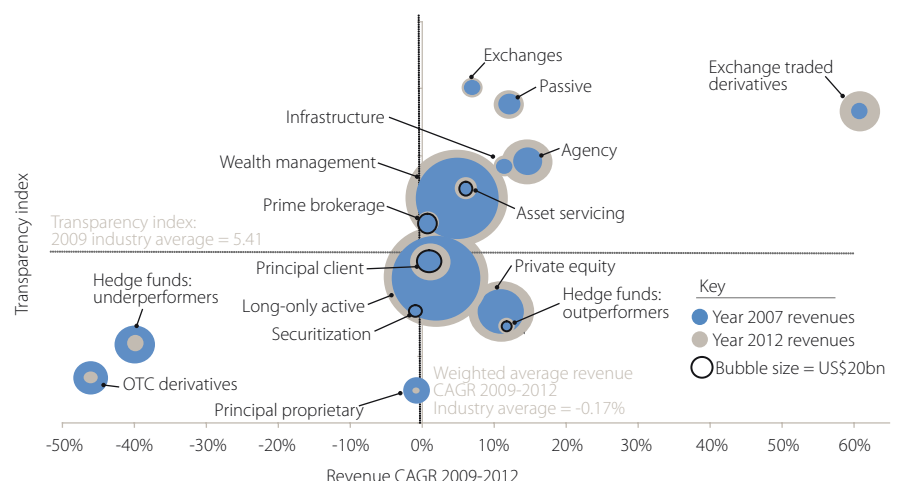
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“We have lost sight of the client in our own striving for outsized returns. We must get back to basics and focus to a far greater extent on our clients.”

– Global Head of Prime Brokerage, large U.S. bank

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The most successful firms of the future will not just be those that focus on providing a first-rate service, as distinct from selling the best products. They will be those that also concentrate on understanding how their clients behave, segmenting them and tailoring the

Figure 8: Estimated global revenues for selected activities, 2007 and 2012.



Source: IBM Institute for Business Value financial model. Note: The transparency index is as of 2009 and is a 1-10 ranking, where 1= highly opaque and 10= highly transparent. The index is based on quantitative and qualitative factors for each activity, categorized by extent of 1) complexity of product offered, 2) shareholder and investor communications and 3) operational transparency. Wealth management revenues duplicate underlying asset classes of long-only active asset management, passive asset management, hedge funds and private equity. Infrastructure is sell side processing and clearing.



services they offer accordingly. IBM's research shows, for example, that investors who rely heavily on their providers and outsource as much as possible value customization and convenience in particular – and they are prepared to pay a substantial premium for such features. By contrast, investors who want a provider with minimal conflicts of interest place much greater emphasis on best-in-class offerings and excellent service. But although they are prepared to pay more for these features, they are less willing to do so than other client segments.

The ability to serve specific client clusters represents a major – and largely ignored – opportunity for the industry to make money. It has long excelled at creating innovative products. Imagine what it could achieve, if it used the same sort of discipline to understand its clients and fulfill their needs.

Creating a new Identity

Finding out what their clients really want and delivering what they promise is critical, but many financial markets firms will need to go considerably further. Asked what worried them most, 80 percent of the executives IBM interviewed expressed uncertainty about their business models. This identity crisis has been triggered by the plunge in the industry's market capitalization, which fell by 48 percent between April 2008 and January 2009.¹⁷ However, it has also served as a forcible reminder of two other changes that many executives have resisted acknowledging: the trend toward greater specialization; and the shift in the industry's revenue pools.

Analysis of the performance of specialist firms and universal banks (i.e., organizations that combine retail,

wholesale, asset management and investment banking) shows that the former are faring much better than the latter. On average, the specialists have seen their revenues grow by 30 percent more than the universal banks and enjoy operating margins of 25 percent, compared with the 16 percent universal banks command.¹⁸

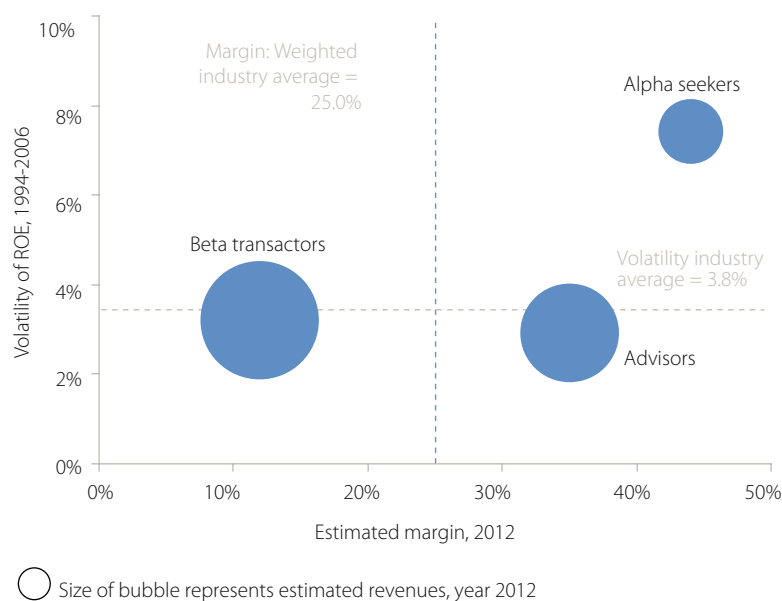
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“Today, global order has disappeared. Tomorrow, we must understand that we have entered a new era – an era of disruption.”

– Global Head of Investment Banking and Capital Markets, large Asian bank
.....

IBM's research also suggests that, in aggregate, the industry's revenues will be largely flat over the next four years, and that most of these revenues will come from providing products or services that help to create more transparency (see Figure 8). Global revenues from traditional “pockets of opacity,” such as hedge funds and OTC derivatives, will fall dramatically, while global revenues from dealing in exchange traded derivatives and cash equities, agency trading, passive asset management and the like will rise. In other words, the emphasis will shift from risk assumption to risk mitigation.

If they are to thrive in this new environment, most firms will have to change their business models. The key question, however, is what sort of models they will require – and, here, the evidence shows that many executives favor a model that is unlikely to help

Figure 9: The winners will specialize and become alpha seekers, advisors or beta transactors.



Source: IBM Institute for Business Value financial model. Note: Estimated margins were derived from a scenario-based forecasting model. Volatility is historical ROE volatility from 1994-2006.



them serve their clients more effectively. Universal banking was the most frequently selected winning business model out of ten business model types. Yet IBM's research shows that independent financial advisers, asset managers and boutique investment banks typically have a better sense of what their clients want and are better able to deliver it.¹⁹

Moreover, even though a substantial percentage of industry executives favor the universal banking model, the vast majority (89 percent) anticipate that overcapacity will ultimately result in some sort of unbundling. Between 39 percent and 45 percent of respondents (depending on the region in which they are based) think that wealth management and investment banking will be decoupled within the next ten years, for example. Similarly, at least 24 percent think that money management and the provision of advice will be separated, while at least 20 percent expect to see insurance firms and asset managers, and alpha and beta providers, unbundled.

In short, tomorrow's winners are most likely to be those firms that specialize, not those that try to do everything, and three specific areas of specialization are likely to emerge (see Figure 9). The majority of financial markets firms will concentrate on becoming "beta transactors" – i.e., utilities that provide the infrastructure required to facilitate capital allocation in the same way that water companies provide the reservoirs, purification processes and pipes required to deliver clean water. A smaller number of firms will concentrate on providing advice – e.g., wealth management

or mergers and acquisitions advice. And a handful of "alpha seekers" – typically private equity firms, hedge funds and boutique investment houses – will focus on generating high returns from high-risk investments.

Conclusion

The days when the financial markets industry could make large sums of money by capitalizing on pockets of opacity and high leverage are over. The lax regulatory regime and monetary policy that encouraged such practices will certainly change, as governments everywhere start tightening the reins. Moreover, greater transparency will result in the commoditization of much of the market, dictating the need to keep "costs per trade" and "costs per asset managed" as low as possible. Most institutions will thus need to adopt a very different business model from the one they currently use.

The firms that compete most successfully in this new environment will be those that specialize and form partnerships with other organizations to supplement their own areas of expertise. They will be those that listen to their clients and provide offerings that are tailored to the needs of different client segments. To put it another way, the outperformers will be the firms that embrace transparency and follow the sensible money, rather than seeking inflated returns through unsustainable practices.

Contributors

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Acknowledgements

We would like to thank the 2,754 industry executives, investors and government officials who took the time to participate in our study. We are also grateful to the Chartered Financial Analyst Institute and Economist Intelligence Unit for their support during the completion of the survey.

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To Measure is to Understand – The Need for Closed Loop BPM

Many organizations are familiar with the concept of Business Process Management as they relate to the modern interpretation of the term – i.e. the automation through software of critical processes within an enterprise. Careful design of the processes and detailed implementation often leads to a successful program of introducing efficiencies to an organization but in many cases, it's only the 'macro' efficiencies that are measured and not the granular steps that compose a business process. By understanding each and every step in a process in terms of desired metrics such as elapsed time, costing, bottlenecks, etc, it becomes possible to feed the information back into a design

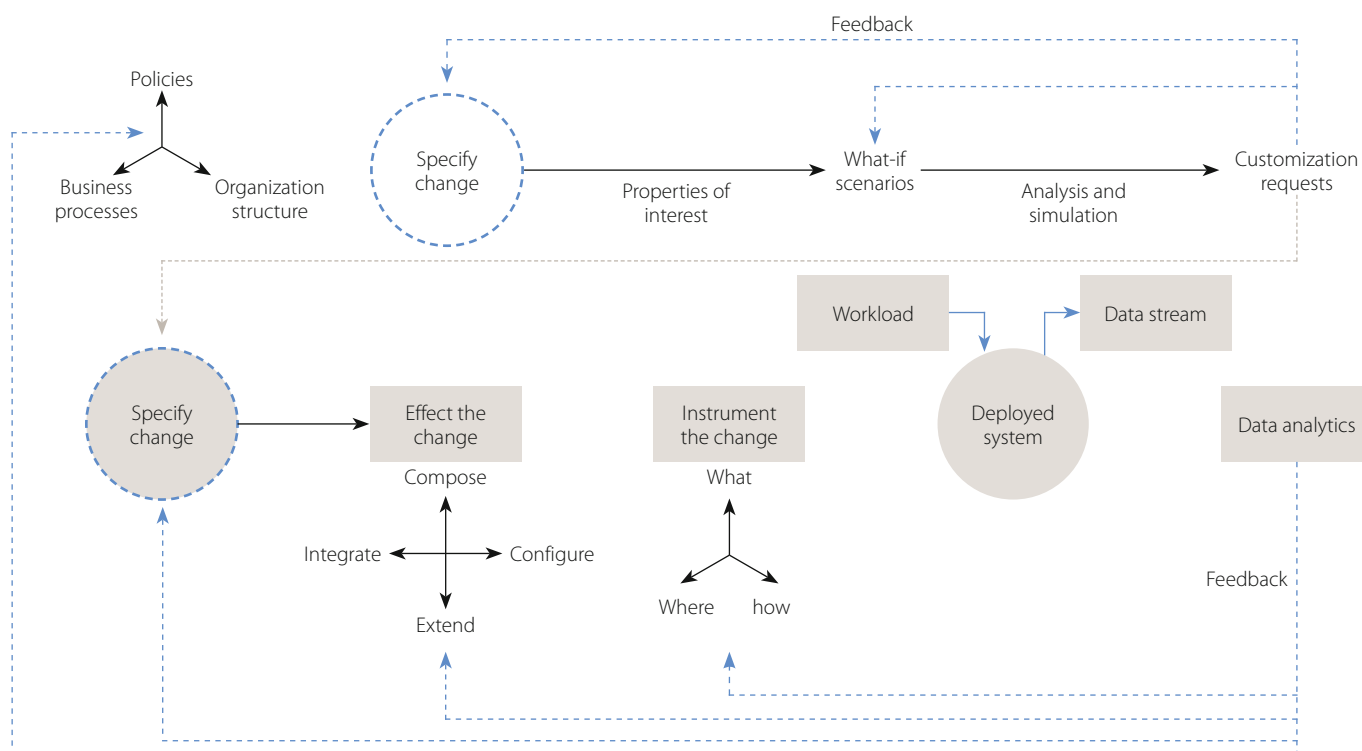
process that learns from the current implementation. This 'closed loop' study of processes allows an organization to continually refine processes and is a critical aspect of the ongoing success of any BPM program.

**At the end of the day,
a business process
is defined through
task descriptions and
sequences.**

Few organizations do this and it's often due to how processes have been designed and implemented. Without

exception, there are multiple teams involved in such a program since the successful ones span both business and technology. Each group brings with it their own tools for designing and implementing processes and this is where things typically start to get complicated. In creating processes, the business users generally lay out the major steps using pen-n-paper or some modeling tool and these process descriptions are then turned into an executable form for automation by the technologists. Because different tools are used, there is often a disjoint in the information passed between the business and technology sides – not through any fault of the design

Figure 1: Closed loop process management





approach but more to do with a gap in the metadata of the process as it crosses between tools. With each tool in use often having a different focus, it becomes impossible to move back and forward between them. Also, the final implemented process often has to accommodate the needs of the technology environment.

Only through the full measurement of how processes perform, coupled with advanced simulation, can a process be deemed as more efficient.

It is the authors' view that only through the full measurement of how processes perform, coupled with advanced simulation, can a process be deemed as more efficient. To do this correctly, it is critical to ensure all levels of process design are tightly coupled through consistent meta data as well – implemented via a repository. This paper will briefly examine both key concepts.

Closed Loop Process Management

Why should an organization care about closed loop process management? Lord Kelvin, the 18th Century scientist summed this up neatly as: "To measure is to know". There's often a rush to implement a process management system across an enterprise (typically building on and often replacing a workflow management solution) aimed at dramatically improving the efficiency - in some cases it does deliver upon the promise. However, possibilities exist for the new approach to further slow down the work in reality

either through the introduction of a bottleneck or through apparent confusion. The latter typically occurs when multiple processes are merged to do the same work as before, albeit at a more efficient pace, yet get confused with the work of only one of the original processes. Assuming the confusion is cleared up and the automation continues, the processes enter a state of refinement. As the process management environment matures, there is a drive to refine the processes and here we get to the heart of the requirements. To understand how a process has been improved, the organization needs to do a couple of things:

- Be able to track why changes were made, the process elements that were changed AND be able to measure this across all design tools (which is where the meta data linkage becomes critical). As we can see in Figure 1, there are a core number of areas to capture and monitor. Unfortunately in the industry, it is typical to span these designs and changes across multiple tools which are not architected to operate cohesively as each tool has a disjoint view of a business process management problem. As a result, it becomes extremely hard to link the business level designs to the technical implementation. Unless an organization can easily relate a business level step with the actual implementation, measuring efficacy of the business step becomes near impossible without significant analysis. Simulation can provide a rough estimate at the business level but by the time the process actually gets implemented, changes are introduced that skew the affect.
- Have previously 'instrumented' a process. Here, the process is

designed with 'event markers' that record critical steps in the flow. These cause the storage of the run time between markers, the owner (or executor of the task) and potentially the volume of information affected. The event markers are best configured to store information at multiple levels: the total run time, the run time between groups of closely related tasks and at the task level. This allows a comprehensive reconstruction of the process.

- Perform simulation and the capture of the process changes prior to release into the environment. The results of the simulation are compared against the prior version of the process initially to determine whether the prescribed process changes are implementation worthy.

Because different tools are used, there is often a disjoint in the information passed between the business and technology sides – not through any fault of the design approach but more to do with a gap in the metadata of the process

- Identify a 'gating' mechanism in the process launch to use business or status information to select either the old process or the new process at run time. This is a form of 'champion/challenger' selection since it is important to determine WHY a



process is more or less efficient before a widespread deployment.

- Be able to execute the processes for a suitable period of time. The time is governed by a) how busy the organization is (to get sufficient executions) and b) The typical run time of the process (to allow them to complete)

Having executed the new process together with the old, the data analysis can begin. Classically, a system that only measured start and stop times would simply report a process was faster or slower than the champion. Even if a process is instrumented at a finer grained level, unless there is a linkage between the process design and the technical implementation, it is still extremely hard to piece the exact cause of changes across the designs. In this case the analyst is left with the issue of knowing the process has had an effect on the timing yet unable to pin down the area.

A business process is defined through task descriptions and sequences. Both of these can be successfully modeled using metadata, which, when coupled with a robust, flexible repository yields traceability across multiple levels of process design and implementation.

How can this be solved? The authors propose that all process designs be

ultimately held within a repository using metadata on the processes and tasks to bridge between the tiers and tools of the environment. A simple naming standard may suffice for an independent environment but a repository driven environment additionally addresses a number of key issues:

- A business level process that uses concepts such as swim lanes, human tasks and automated tasks will generate a technical implementation of the process that can easily double or triple the number of steps. A repository provides structures to link steps in a one to one, one to many or a many to one relationship thus aiding in process navigation.
- Process design is aimed at re-use and consistency. Because of the explosion of task numbers, it rapidly becomes hard to locate candidate tasks for re-use and an enterprise ends up creating duplicates on large programs, destroying one of the key tenets of the original reasons for the programs.
- Version management across the tooling levels. This allows consistent, unique versions to be created and maintained, linking the business definitions to the technical implementation for release management as well as recoverability back to prior versions.

At the end of the day, a business process is defined through task descriptions and sequences. Both of these can be successfully modeled using metadata, which, when coupled with a robust, flexible repository yields traceability across multiple levels of process design and implementation. When the instrumentation of a process is also introduced, the metadata greatly assists in highlighting which tasks are impacting the timing changes. Because the

loop can be closed in this way, the enterprise is given an environment in which processes can be designed, simulated, deployed and correlated correctly and with minimum effort.

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Ian Pitt

As the Global Head of Research, Development and Technology, Ian interacts daily with both customers and engineering, providing solutions, product roadmap guidance and insight, specifically in the channel applications space, development tools and SOA. He controls the development of model driven development tools, internal IT and the usability/performance labs. He also acts as the representative of TCS FS to the TCS CTO board.



Vinay Kulkarni

Vinay leads research initiatives on agile adaptive enterprises, business process management and software product line architectures. His work in model-driven development has found way into a widely used Model-Driven Development (MDD) toolkit, led to several patents, and two of the three core international standards on MDD.



Green IT and the Financial Services Industry

Global warming. Energy costs. Energy supply. Diminishing natural resources with increasing costs. Environmental wastage. Environmentally destructive practices. Waste.

These, and other factors, are all behind current initiatives to become more socially responsible, as individuals and as corporations. These factors are also behind current initiatives to reduce energy costs and material consumption. These factors are behind internal drivers to implement Green IT, and are behind external drivers to establish regulations that require you (directly or indirectly) to implement Green IT. You now have the opportunity to proactively invest in Green IT strategies and solutions, which will reduce costs now and prepare you for the future world. Or, you have the opportunity to react later, most likely at higher cost and with significant risk of disruption to your business.

Here's the new reality: If we all want to be in business in the future, we have to change the way we use power and reduce our impact on the environment. Sustainable computing is a substantial part of the answer.

A Challenging Backdrop for the Financial Services Industry: Changing Customers, Changing Technology

Across the globe, financial institutions are striving to navigate a series of conflicting business drivers in order to deliver risk-free growth and operational efficiency. Furthermore, with the advent of the global credit crisis, financial institutions are under increasing pressure to account for every dollar

of capital expenditure. A sustainable technology strategy along with a data center of the future today are vital to accomplish these objectives.

It used to be that IT challenges were met by simply adding new technology assets to already large and unwieldy environments. Over time, the result has been financial services industry data centers characterized by poor utilization, increasingly high cost of ownership and complexity. Against a background of staggering growth in data volumes, greater competition, weakening customer loyalty, and stringent regulatory requirements, financial institutions now find themselves constrained by the twin evils of infrastructure inflexibility and high operational cost.

In extreme cases, it is almost impossible to rapidly deploy new financial products and services that are fully integrated with all business systems. Change has become difficult and expensive to accommodate, and the inevitable mix within the data center of hardware, operating systems, and even technology generations has impacted reliability and also increased the burden of management and maintenance.

While every financial institution aspires to an integrated technology environment that meets key business drivers, the fact is that over time data centers have been allowed to evolve into a series of technology silos that, collectively, fail to deliver the performance and flexibility demanded by the modern financial services industry. This results in financial institutions struggling

to stay competitive, high operational costs that eat into their profits, and the constant risk of security and compliance breaches.

The key question is how to make the data center a strategic asset, and meet corporate citizenship objectives for green IT at the same time. Few industries understand the impact of IT on our environment as much as the financial services industry. According to Gartner, this industry:

- spends more (6.7%) of its revenue on IT than any other industry (4.1% average).
- spends more (\$24,800 USD) per employee on IT (\$13,500 USD average) than any of the other industries evaluated, with the exception of the insurance industry
- spends more than twice (12.3%) of its Opex on IT (5.9% average)

With the exponential rise in the volume of information to be processed, increasing demands for compute-intensive risk calculations and analytics, new channels including internet applications for services and products previously processed via face-to-face or telephone contact, the pressure on the data center continues to increase.

Furthermore, the customer dynamic is changing. We have seen Generation X, and the effect they have had on the financial services industry with new channels and communication methods. Now the 'Facebook' generation is far more fickle with their services – if it doesn't happen instantly, they move on to your competitor. Witness the growth



of price comparison websites, which present your services and products stripped to the bone in an open market. Competing on value and service is possible, but first the customer wants to see a price – and FAST. Speed has long been a competitive advantage in capital markets, and now the pressure is moving to retail banking as well.

Technology regulations are also emerging. In the past year, we have seen the emergence of the EU Data Centre Code of Conduct and the UK has set carbon reduction targets effective 2010. Even if you are not affected directly, if you are a supplier in Europe, you will be impacted by changes in policy. At HP, we see this from customer procurement questions asking us to detail our sustainability practices and policies, often which are part of the client's decision making criteria.

Financial institutions thus need to balance agility with cost. IT has to improve its return on invested capital. Fundamentally, IT needs to be Green, and fast.

Making IT Green

Making IT Green is closely connected with controlling and reducing energy consumption and costs, and improving the efficiency of facilities and IT infrastructure and other IT related assets. Hand in hand with this is taking a business services view of IT, reviewing application strategies and choices and management processes, along with hardware and buildings. For example, it's possible to monitor your payments systems and control individual messages. Resources can be dynamically allocated to real time business workflow. We consider Green to be a key element for Data Center Transformation, because it embeds efficiency as a guiding principle – and from a business perspective.

To begin, Green starts with the data center facilities, and their energy (power and cooling infrastructure). Within the data center, almost 50 percent of the energy is consumed by the cooling, lighting and power distribution management. Most data center facilities were built to minimize construction or acquisition costs, not operational costs or total cost of ownership. Modernization of the facilities can help improve energy consumption. In some cases, total cost of ownership is minimized through data center consolidation projects, reducing the number of data centers in the enterprise, and may include building new energy efficient data centers.

Secondly, comprehensive energy analysis projects can help you identify all of your opportunities for reducing energy consumption in the existing facilities and quantify the financial benefits for each.

Third, consolidation, virtualization and modernization (it is preferable to look at these together!), combined with application rationalization, consolidation and modernization, will reduce the number of physical assets required to deliver business services and reduce even more the energy requirements of that organization, as modern infrastructure is significantly more energy efficient than previous generations.

Finally, decision making and policies can further enhance your Green IT and sustainability initiatives. The CIO can influence decision making and impacts on the business and environment. Some examples are setting up the procurement process to specify Energy Star ratings on equipment, having "gold disk" settings that default to energy saving settings.

One of the primary requirements of a technology environment in a typical

financial institution is the highest availability of customer services. However, downtime is a common by-product of complexity and obsolescence. Initiatives to improve the customer experience – along with the roll out of high-quality financial products and updated business services – are often compromised by routine maintenance and unplanned outages. Green eliminates wasted resources, and because resources are more dynamic (i.e., portable), outages are minimized. Financial institutions can truly begin to understand the marginal cost of doing additional business – improving strategic decision making capability, and driving shareholder value creation.

Use IT to Make the Enterprise Green

IT is an enabler for many technologies that can help reduce costs, improve efficiency and have a positive environmental impact.

The first is unified communications; instead of flying cross country or overseas to have a face-to-face meeting, technologies like telepresence and video conferencing solutions enable the nuances of non-verbal communications to be retained, at a substantially lower cost. Client meetings can be done instantly, crossing many time zones. Organizations can place their best people in the right geographical location, irrespective of their customer base. Unified collaboration is a key enabler of high frequency communications and is used extensively within capital markets. Increasingly a trend of online customer 'chat room' contact is being used for retail channel customers. Customer touch points are now virtual – many visit their branch in the real world less than once a year, but crucially see the banks online presence as their branch. The branch 'soft' features must move online.



At the work place, unified communication technologies can extend to mobile workers or alternative work arrangements, reducing the need for travel, increasing employee efficiency, improving quality of life, and positively impacting the environment by not generating travel related pollution.

Digitization of data is another step and can facilitate access to information through a wide variety of mobile and fixed devices, supported by policies and procedures for security, privacy and regulatory compliance. Many banks extend their services to mobile devices for secondary authentication and information provision – balance advisory messages, etc.

IT is the backbone for effective energy management and consumption throughout the organization. Smart(er) devices will sense when they are not needed and reduce their consumption automatically. Many business operations from supply chain to disposal chain will all interact with the enterprise applications to accurately report carbon footprint, energy savings and other regulatory requirements. These social benefits are of value to consumers, private individuals and financial institutions trying to enhance their brand image.

Furthermore, a dynamic environment will put the required resources in the right place at the right time, increasing agility and reducing time to market for the financial institution. Customer retention will improve with higher quality of service; operational excellence will drive improvements into bottom line performance. A manageable environment will create a competitive advantage, utilizing automation, energy and space efficiency in conjunction with dynamic resource pools, making every

dollar count. A true measure of return on investment will be possible, and can drive future investment decisions.

Financial Institutions Gain from Green IT

Green IT investments can have positive financial impact on the CFO by reducing energy costs, eliminating the need to procure additional equipment and more effectively utilizing existing assets. These investments can positively impact capital expenditure by reducing the need for physical IT assets (as they can be shared and utilized much more efficiently through virtualization), and reducing the potential need for data center expansion since energy capacity is less likely to be an issue.

Green can equal Gold. Effectively and simultaneously addressing total cost of ownership and environmental concerns has the potential to deliver positive ROI and corporate responsibility goals that can translate into higher sales and profits.

Green for the financial services industry can be a key differentiator. Financial institutions trade carbon credits on behalf of their own customer base. We've seen credit cards and other products aligned to carbon initiatives. Financial institutions have been key adopters of technology to drive their business into new channels, products and services, including the internet, telephone banking and so on. Corporations have worked hard to create an all encompassing, dynamic organization to serve its customers in many different ways, providing a single customer experience. Green IT can differentiate a bank from its competitors. Now the bank can use Green IT to drive sustainability, product and service agility, and for a lower marginal cost – freeing up capital to be invested elsewhere and potentially increasing shareholder returns.



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Andy leads the global Banking team at HP. He is responsible for HP's strategy and solution portfolio, and driving growth in this key industry segment for HP. Andy joined HP in 2008.

Prior to HP, Andy spent 29 years in the Financial Solution Division at NCR, where he held key a number of key leadership roles that included: Vice President and General Manager of the Payment and Imaging business unit, Vice President Global Sales, Financial Solutions, and Vice President Financial Solutions Americas. Andy holds a Bachelor's Degree in Accounting from Indiana University.

HP has been focused on sustainability for more than 50 years. The company has invested in energy efficiency R&D for more than a decade. HP experts were actively involved in the development of the EU Data Centre Code of Conduct. HP has implemented managed print services internally, reducing print costs, print-related energy consumption and paper consumption. The company has benefited financially and socially from its Green investments.

Learn more about how you can identify products and services designed with the environment in mind at www.hp.com/environment. For more about HP's unique portfolio of solutions for the financial services industry, please visit www.hp.com/go/fsi

¹ Michael Smith and Kurt Potter: IT Spending and Staffing Report, 2009. Gartner Research Publication G00164940, 27 January 2009. pp. 31, 33, and 36.



Why IT Should Lead an Organization's "Green" Movement

The causes, scope and impact of global climate change may understandably be subject to a divergence of opinion, but it is now virtually impossible to deny that climatic changes are occurring. Likewise, it is no longer possible for organizations to ignore the significant environmental pressures that face them today. Volatile energy costs, limitations on available energy, imposed rules/legislated regulations, and a general desire for transparency into an enterprise's operations, including its supply chain, are all realities organizations must address. And they must do so while continuing to be responsive to the needs of stakeholders. Unquestionably, organizations must act to deal with all of these issues, lest they put themselves at risk of extinction. However, to date, those actions have all too often proven to be reactive rather than forward-thinking, isolated rather than coordinated, department-centered rather than business-wide. An organization's response must be more comprehensive and systematic in order to maximize resources and focus energies on successful outcomes for the business overall.

Current conditions create a perfect opportunity for IT to step up and play a critical role in helping shape the organization's responses to these environmental challenges. IT can do this by working in concert with business units and by utilizing technology across the enterprise to help reduce cost, mitigate risk, and also seize opportunities.

Challenges Facing Organizations

Energy, carbon and sustainability issues are putting tremendous pressure on organizations today. One could argue that energy costs and capacity limitations alone are enough to put this on the agenda of C-level executives in an organization. But there are even more factors at play, as stakeholders, within and without the organization, play an increasingly active role.

Consumers are showing a growing interest in more eco-friendly products and services. They are also looking at the reputation and image of the organization in terms of environmental issues as a determinant factor in buying decisions.

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Governments are taking a harder stance on the reduction of carbon emissions and implementing cap and trade systems as witnessed by

the European Union Emission Trading Scheme (EU ETS), the UK Carbon Reduction Commitment (CRC), and the Australian Carbon Trading Scheme. In the United States, the American Clean Energy and Security Act of 2009 contains legislation that would implement a cap and trade system in America.

The suppliers' role continues to be an important one, but in a different way. In the case of suppliers, it is all about transparency. In an effort to both minimize risk and identify opportunities, organizations now need to have greater visibility into the operation of their suppliers. The epitome of this is Walmart's recent announcement of its plans to query each of its 100,000+ suppliers on what they are doing to address environmental issues in their operations.

Investors are also asking for transparency from an organization. An example of this is the Carbon Disclosure Project (CDP), a Non-Governmental Organization (NGO) that requests information on a company's carbon footprint, energy usage, and climate change strategies. This information is then being fed to Bloomberg and added to the profile of the organization, allowing investors to have insight into the carbon and climate change risks of the firms in their portfolio.

The above context doesn't even take into account the needs of other stakeholders such as the organization's employees and its board of directors.



Clearly, then, environmental pressures on any organization are considerable and undeniable. Responding to these pressures brings costs and risks, to be sure, but they can also present opportunities for savings, growth and improvement that organizations would be foolish to ignore.

Strategic Role of IT

There needs to be a single department in the organization with the capability of driving change across the enterprise to address these issues in a systematic fashion. The department best suited to lead this effort is IT. Let's look at three reasons why this is the case.

First and foremost, the IT department is already engrained into every part of the business and has the ability to cut across silos. The IT department is pervasive across the business and, therefore, is best suited to deal with the challenges that cut across the enterprise.

Secondly, the IT department in almost all organizations is already looking into "Green IT" technologies to help itself optimize the energy consumption of its data centers. These efforts should give IT a basic understanding of how technology can help deal with issues around energy, carbon, and overall sustainability. This provides the IT department the opportunity to leverage what it is currently learning in helping itself and apply that knowledge across the enterprise in new and innovative ways.

Finally, the IT department is ever looking to play a more strategic role for the organization, seeking to provide a competitive advantage. For the last few years, IT has been preaching its

desire to improve its alignment with the business units. Well, what better way to do this, than to play a strategic role in addressing the energy, carbon, and sustainability challenges not only within IT, but also across the scope of the enterprise.

IT should look to coordinate with the business in identifying areas where technology can be applied to help the enterprise reduce expenditures, mitigate risk, and seize opportunities. To help cut costs, IT should look to provide technologies that improve energy management and automate manual processes. Carbon management and compliance monitoring solutions can help the organization to mitigate its risk. However, the focus is not only on preventative measures, it is also on capitalizing on opportunities. Therefore, technologies that give insight into the portfolio of opportunities and assist the organization to choose the right initiatives, implement them, validate the results, and report fact-based information to stakeholders, comprise an important part of any successful program.

The IT department is pervasive across the business and, therefore, is best suited to deal with the challenges that cut across the enterprise.

Closing Thoughts

Whether the driver is addressing energy costs, energy capacity limitations,

consumer pressures, environmental regulations, supply chain transparency, or an increasing need for investor disclosure, organizations are faced with significant challenges. These challenges cut across the enterprise and need a systematic approach to address them efficiently, comprehensively, and successfully. IT has touch points into every department, it is already utilizing technologies that improve its own environmental issues, and it has a desire to play a more strategic role in the business. Therefore, now is an opportune time for CIOs to seize the moment and take a leadership role in addressing these challenges. In so doing it will exhibit once again how IT can be strategic in solving critical business problems for the enterprise.



Terrence Clark

Terrence Clark is a Senior Vice President and General Manager heading up CA's ecoSoftware Business Unit at CA. In defining CA's innovative Green Governance approach to overall corporate sustainability, he helps organizations evaluate their portfolio of green choices, while showing them how they can reduce their carbon footprint, save costs, seize green opportunities and be both creative and effective in pursuing a green strategy.



Redefining the Value Experience in Banking

Radical Shift in Thinking – Tearing Down the Walls of the Bank to Bring in the Customer in the Truest Sense

Financial upheavals across the globe have left many ailing institutions bracing for survival. Those that are in good shape are making quick decisions on how to gain competitive advantage while others are assessing the damage. We will soon witness a radical shift in the way banks deliver customer experience. This could result in bankers literally tearing down of the walls of banks to bring in their customers. Reorienting towards this paradigm will herald the advent of new business models and selective investment, by bankers, in technology innovation to gain market and position for growth.

Growth opportunities in technology innovation would begin from consulting and integration services to next-generation software architectures and services (SOA and BPM and SaaS), to IT outsourcing and governance. The demand for BPO services will also rise for reasons of better cost visibility and variability related to volume fluctuations. Service, value and convenience will be the mantras of success. Process and service innovation will create value for banks by attracting customers through simplicity and efficiency. Organizations will have to embed this idea into their processes, people, systems and business partners to be successful.

With the increasing consolidation we are now witnessing in the banking industry, the approach is to reduce spending and free up investment capacity for a few vital technology projects. This will spur a surge in technological innovation in the form of client facing, collaborative, analytical and risk management applications.

Advanced customer and profitability analytics, and the streaming of pervasive information and unstructured data will lead to customer segmentation-specific services and transactions.

Further, for wealth management and transaction services units that have sustained exemplary performance in the past year, demand is picking up in selected emerging market locations, while the unbanked customer segment continues to represent untapped potential.

Going forward, we will see a growing interest in automation solutions that will help banks reach high-volume, low-value customers and link corporate performance management with finance, accounting and risk management. A

proactive approach to gaining visibility into credit exposures and operational performance will attain primary status. Advanced customer and profitability analytics, and the streaming of pervasive information and unstructured data will lead to customer segmentation-specific services and transactions. A fresh generation of applications (from SOA and BPM related to Web 2.0) will emerge in areas such as multifunctional collaboration, targeted marketing, multimedia delivery, and personalized customer experience.

In this article, we outline the characteristics that will shape this new persona of banking and the related approaches that banks are likely to adopt.

A Quantum Leap in Customer Experience and Agility

As we said earlier, this new paradigm of banking will drive customer-centricity, which will manifest itself in the form of customer profitability analytics, relationship pricing, and a completely new way of looking at customer relationships. Transforming customer comfort levels, for banks, would mean increasing transparency, providing the 'right' information to customers instantaneously, and using the right technology applications to make this happen. The focus will shift from products, with banks lowering the costs of serving customers. Relationship-based selling and interactions with customers supported



by real-time or at least intra-day analysis of internal and external customer data, will eventually lead to banking becoming more personal. Now, how does this connect with technology?

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Transforming customer comfort levels, for banks, would mean increasing transparency, providing the 'right' information to customers instantaneously, and using the right technology applications to make this happen.

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Creating a unique customer experience will begin with banks enforcing simple, consistent customer-aligned processes through the efficient use of next generation architecture and services such as Service-Oriented Architecture, Business Process Management and SaaS. This implies restructuring data warehouses, and a greater adoption of content management and BPM technology to automate decision-making. It will also include the ability to adapt raw products to the individual needs and desires of customers to create individual products or custom products for complex financing, or third-party products to facilitate efficient bundling. Products will need to knit together a mix of solutions – current accounts, loans, derivatives, stocks and funds and insurance – and personalize them for customers (such as high-net-worth-customers or

corporate groups). These offerings will be strong on customer longevity and answer diverse demands. In short, we are looking at the emergence of mass personalization in services and products.

Agility and Transformation

Banks will equip themselves on agility – in the form of increased operational efficiency, reduced operating costs, improved overall customer experience, and a holistic approach to risk management. Naturally, this would mean adopting a “do-more-with-less” philosophy; for instance, outsourced services in the ITO and BPO spaces will need to be paired with offshore or ‘nearshore’ deliveries, to drive down costs. Outsourcing core competencies may take on a new meaning as the competency that banks wish to outsource may be redefined. IT and operations will be viewed in a symbiotic manner, where the greater integration of IT and operations to deliver increased value to the business – and the customer – will be stressed upon. The question that will remain uppermost in bankers’ minds will be, “How can I acquire and retain customers at a reasonable cost?” This will translate into the new customer experience orientation again – which is to create a trusted and transparent partnership with customers through the sharing of important information in real time.

Next-Generation Architecture and Services

We believe that the next-generation architecture for banking should be such that it manages the dynamic

nature of the business and technology, while it supports agility, fosters innovation, and is flexible. The adoption of new architectural frameworks, such as Service-Oriented Architecture (SOA), and technologies, such as complex-event processing or Business Process Management (BPM), will help banks achieve the right degree of agility in several ways. For instance, most bank acquisitions come with readymade expectations of rapid integration to enhance operational efficiency. With SOA, banks can rapidly integrate acquisitions through common customer touch points and leave back-office consolidation for a later time.

Business Process Management (BPM) and SOA together can facilitate collaboration at multiple levels, help share resources, deliver optimal use of funding, and drive business priorities through the effective use of IT architecture. By exploiting the combined value of BPM and SOA to increase enterprise agility, banks can build awareness, increase flexibility, adaptability and productivity. BPM enables continuous process optimization, and separates processes from implementation and makes them more explicit and clear. Both SOA and BPM work towards mapping business and IT priorities for perfect alignment, something that has been attempted through numerous ways in the past. With this approach, service delivery levels and cost estimation of IT projects are improved while business transactions monitored proactively. Consequently, banks can use these technologies for conducting business as usual — or for doing business differently, with more agility.



How will this change the scenario for IT solution providers? Solution providers will move away from selling applications as software licenses to selling services, based on different licensing models. Off-the-shelf services from traditional banks will now compete with open source and service banks, leading to banks using multiple vendors for multiple services at multiple locations – thereby, establishing a broader SaaS environment in banking. Within a particular services ecosystem, you might find highly differentiated and specialized services collaborating with other niche offerings.

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The question that will remain uppermost in bankers' minds will be, "How can i acquire and retain customers at a reasonable cost?"

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Core Renewal

Banks will increasingly build SOA-based middle layers to lower overall maintenance costs, reduce application redundancy, assure data integrity, and facilitate data sharing. With SOA, banks can incrementally modernize core systems where parts of the core are upgraded, service-enabled or migrated to a modern platform. SOA's level of maturity allows for service-enabling the core to reduce the cost of maintaining front-end applications that need access to information in back-end systems. It helps banks mix and match granular services to create new products. The next level of core banking will create

services such as relationship-based pricing and other hybrid products from multiple core systems.

The new core will focus on functionality that accelerates the business or creates areas of differentiation. Banks will combine the new core with open source and service banks and off-the-shelf services in assorted flavors. The trend will be towards creating a network of business and informative services.

Wholesale Banking, Payments and Mobile Banking

In wholesale banking, remote deposit capture, upgradation of cash management systems and mobile banking will see growth. The evolution of mobile banking will see it moving from offering basic functionalities such as balance inquiries to advanced bill pay and intra-bank transfers. SMS, downloadable applications and mobile browsers will enable mobile banking for a diverse demographic set. In fact, this form of banking will also change the face of enterprise retail payments by ushering in the convergence of internet and mobile payments. Mobile banking will become a vehicle for e-coupons, discounts, and even wallets to hold overseas remittances. Another viable consumer application will be remote deposit capture. The continued adoption of check imaging exchange will result in straight-through image processing of remotely captured checks. Contactless technology could gain precedence.

Collaborative Banking

Many financial institutions are integrating their services with social

networking sites while also bringing in more social networking aspects to their banks' online channels to enhance the customer experience. Social lending (Zopa communities) and social insurance will catch up, even as full services businesses could offer banking and insurance, and community financial advice and other collaborative offers through online communities and networks. The stress will be on making customer information available at the best point in time in a manner that helps experts across multiple locations in banks to work together. The branch will act as a hub in this networked, multichannel environment, making banking more effective and convenient for customers. Further, location-based services such as directions to the nearest ATM, self-service centers, country-specific capabilities, and other channel-specific services will gain prominence. The banking architecture that supports all of this will need to be able to switch from one channel to another, including branch to home and office communication hubs. To deliver the right product to the right customer at the right time, banks would have to collaborate with their partners to enable mass customization and 'white labelling' of products and services.

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Outsourcing core competencies may take on a new meaning as the competency that banks wish to outsource may be redefined.

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Risk Management – Now a Core Business Competency

Banks will adopt a converged approach to risk where they will re-evaluate their risk management acumen in a manner that calls for higher levels of transparency, structural integrity and operational control. To combat internal fraud and protect clients and accounts, behavior and rules-based tools will be brought in. Better risk management and surveillance applications that address systemic and customer-oriented risks, potential conflicts of interest, financial valuation, velocity of market movements and regulations will become popular. Future pricing will be dependent on risk minimization even while relationship-based pricing will continue to hold sway.

Advanced customer analytics that help differentiate service levels and define pricing will take center-stage. Information from all sources – internally, externally including partner networks as well as unstructured data from social networks – through business intelligence systems will be gathered and analyzed for decision-making and to offer segment-specific services and products at all levels within banks. With this kind of real-time analyses combined with real-time alerts targeting both customers and bank employees, banks will be able to tap into real-time opportunities and develop unique and more enriched customer relationships.

Overall, we will see banks rebuilding trust and confidence with stakeholders; revisiting their risk management approach with the right people, skills and tools; and, spreading liquidity and credit risk by widening their sources of

funding and retail deposits. They will attempt to balance defensive strategies with proactive innovation in business models, integrated processes and advanced technologies. On the outsourcing front, we will see an increasing share of application outsourcing alongside custom application development. By partnering with an ecosystem of industry providers, they will deliver optimal value to end customers.

Banks will combine the new core with open source and service banks and off-the-shelf services in assorted flavors. The trend will be towards creating a network of business and informative services.

In a nutshell....

Banks will redefine the value experience for their customers through an increased focus on:

- **Agility:** To weave operational efficiency and technology together in a manner that transforms and delivers value to the business and the customer. Next-generation architecture and services such as SOA, BPM and SaaS will help enable this.
- **Trusted partnerships:** To increase transparency and the comfort feel of customers while also reasserting trust levels in the form of constant availability of real-time information through multiple channels.

- **Risk management and customer analytics:** A converged approach to enterprise-wide risk management and compliance that will bestow structural integrity, and help control and monitor operational and systemic risks. Further, customer analytics will drive the creation of target-specific services to customers.
- **Collaborative banking:** To deliver the 'Right' product/service to the 'Right' customer at the 'Right' time and through the 'Right' channel will mean tapping into collaborative partner networks.

Banks will discover that simplicity, transparency, customer-oriented innovation and technologies are decisive attributes in rebuilding trust and creating a differentiated and unique customer experience.



Dennis Roman

As Chief Marketing Officer, Dennis Roman is responsible for establishing and enhancing TCS Financial Solutions brand equity as a leading specialty IT solutions provider to the global financial services industry. His responsibilities include branding, media/public relations, industry analysts, advertising, direct and telemarketing programs, collateral, websites, and events.



A Case for Enterprise-Wide Solutions for AML and Anti-Fraud

Navigating the ever-changing/dynamic financial services industry successfully for most institutions translates into growing revenue while simultaneously controlling costs. From revisiting business models to evaluating how best they can improve analytics and risk management strategies, banks today are metamorphosing into institutions encompassing a variety of businesses such as insurance, securities, investment banking, among others. Even as they consolidate and transform, the underpinning theme for banking transformation over the past year has been on redefining the value experience delivered to customers. With the increasing consolidation we are now witnessing in the banking industry, the approach is to reduce spending and free up investment capacity for a few vital technology projects. This in turn is seeing a surge in technological innovation in the form of client facing, collaborative, analytical and risk management applications. Many banks are moving towards operationally efficient, low TCO 'bank in a box' solutions that offer comprehensive process-driven functionality in a ready to deploy state.

Financial Crime High on Banks' Agenda

Even as banks set out with renewed focus—and some caution—they understand that customer insights into services and processes are what will propel them into gaining a sustainable advantage, while also providing transparency and offering value. As regulators are tightening their hold, banks are

looking at opportunities to strengthen their risk management practices. Until now, banks viewed risk at a product, portfolio or business unit level without having a firm-wide picture of risk. In today's context, it is imperative to align business goals with risk profiles to provide an integrated, consistent view of risk across an enterprise. And, this includes financial crime. Fraud and money laundering are the two most common crimes seen in the financial sector, resulting in financial institutions placing financial crime and associated compliance requirements, including combating money laundering and fraud high on their agenda.

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Many banks are moving towards operationally efficient, low TCO 'bank in a box' solutions that offer comprehensive process-driven functionality in a ready to deploy state.

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The scope of financial crime is expanding to retail banking, online brokerage, private banking, cards, insurance, corporate banking, and institutional securities, among others, aided with sophisticated technology. The rapid growth in the number and complexity of electronic payment transactions across the globe, while creating new business opportunities, has also ushered in new fraud challenges. Fraudsters

have stepped up their use of electronic network attacks and innovated to develop new patterns of fraud across new electronic payment channels. As payments systems evolve into real-time settlements and money transfers, payments-related fraud throws up a posse of challenges.

Curbing Opportunity Loss – Moving AML Programs from the Sidelines to the Forefront

How can a new-age financial institution address financial crime? As we said earlier, an enterprise-wide approach to risk and compliance is fast beginning to gain a firm foothold in most organizations. From a traditionally siloed focus of monitoring fraudulent behavior, many organizationally diverse firms are now creating global AML and anti-fraud programs across all affiliates in a group. Multiple AML solutions in an organization can inhibit its ability to create the links and intelligence required to combat the most sophisticated criminals. Most companies today are consolidating their AML efforts into a single department to adopt technology enterprise-wide, while also managing global efforts at compliance centrally. Particularly in Europe, firms are creating a 'Group Integrity' department combining AML, fraud, and, in some cases, security into one unit. More importantly, the sharp realization that financial crime has moved from being a post-process activity to an in-process requirement for early detection has set in.



Integrating AML and Anti-Fraud Platforms for the Enterprise

The need of the hour is the establishment of an integrated financial crime platform utilizing common technology components and data models catering to all types of financial crimes. Such a system would allocate capabilities for both real-time as well as static data analysis and act as a subset of an enterprise-wide risk management platform. An added benefit being consolidated reporting for regulatory compliance.

An enterprise-wide system adopts a holistic approach to analyzing the risk involved in a transaction, by gathering and using information available from other business units. Through 'adaptive profiling', enterprise-wide systems can identify both known and emerging money-laundering/fraud schemes and discover any type of behavior that appears suspicious and unusual. Such systems look for any form of unusual behavior across all applications (such as trade management, loans, cards, payments, etc.) in the organization, as opposed to looking for specific or known forms of money laundering/fraud by sifting through selected transactions. This allows financial institutions to detect even highly sophisticated schemes that elude detection. Enterprise-wide, intelligent systems also provide a cost-effective approach that greatly reduces the overall workload, helping compliance staff focus on high-risk transactions.

We believe that an enterprise-wide AML solution will carry the following important advanced technological functions:

- **Interfaces** that integrate with the international network of financial and regulatory bodies and enhance

the capability for information processing

- **Visualization tools to depict relationships** - advanced link detection technology coupled with visual depiction
- An **enterprise-wide architecture** that integrates internal core financial applications and facilitates information flow and traceability across multiple applications
- **Intelligent transaction monitoring** to detect and alert suspicious activities across business units

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Through 'adaptive profiling', enterprise-wide systems can identify both known and emerging money-laundering/fraud schemes and discover any type of behavior that appears suspicious and unusual.

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- **Behavioral and self-learning capability** through intelligent pattern recognition techniques for emerging anomalous patterns - AML technologies have emerged with the ability to monitor every single transaction, discover various types of unusual behavior and alert compliance users with the activities that represent prospective risk to the organization. These intelligent systems are capable of learning and adapting themselves to emerging money laundering patterns.
- Inclusion of **predictive analytics technologies** to limit false positives

- Ability to process both structured and unstructured data/ information
- **Enterprise-wide customer risk assessment model** to restrict entry of unwanted entities into the financial system
- Efficient reporting system for both regulatory and internal controls
- **Enterprise-wide customer dashboard**, presenting a single-screen view of a customer's activities and exposure across the enterprise.
- Multiple group control and reporting capability based on management policies
- **Enhanced case management and workflow systems** to streamline organizational processes proactively, making investigation processes more efficient. This includes automated workflow management, links to information and data relevant for carrying out investigations, and data analytics such as trends, behavior charts and transaction tracing, robust reporting capabilities and advanced security features.
- **A watchlist filtering module** for maintaining various watch lists and scanning customer and transaction records for entities present in these lists. The module would perform the string search functionality of a bank's customer's information against the various lists provided by the regulatory bodies and other third parties. Many robust solutions deploy advanced search algorithms for screening entity names, addresses, country, and other details. This would include integrated account opening and KYC modules for consolidation and management of KYC information available across



databases for the smooth functioning of the AML program.

- **Integration with payment networks such as SWIFT**

Choice of an AML Platform

Finally, to facilitate the successful deployment of such a solution, it is imperative for organizations to work with solution partners who have a broad array of technical capabilities and impressive support services.

An advanced enterprise-wide technology solution should be capable of handling all of these functions, while serving the enterprise in a comprehensive manner, from the technical staff to the business user to senior management.

Flexibility more than Functionality

A component-based solution covering case management, risk analytics and reporting will make for a seamless enterprise-wide AML solution. More than the functionality, ease of integration, flexible technology architecture, domain expertise and a culture of ongoing innovation are what will make an AML solution robust and the organization agile.

Investing in an enterprise-wide AML and anti-fraud product can be leveraged to improve service levels just as two banks in an emerging market recently did. A tier-one bank recently adopted enterprise-wide AML and anti-fraud software to cover its branches across corporate and personal banking, industrial finance, agricultural finance, financing of trade and international banking. It implemented a unique single-vendor approach across all branches and business units. Special

care was taken to ensure strict regulatory compliance with respect to Anti-Money Laundering as well as data security laws.

Again, a large consumer banking organization with operations spanning across Consumer, Investment and Islamic banking, and with a customer base of more than 5 million, implemented an enterprise-wide AML solution. Focusing on the suspicious transactions while not affecting the efficiency of bank's daily operations, and with the limited resources available at the central AML department, the AML solution integrates with core banking, treasury, trade finance and other modules. Its comprehensive workflow model facilitates two-tier investigation, supporting both centralized and decentralized investigation processes.

Experience Certainty through a Holistic Approach

Financial crime continuously adapts itself to elude detection. As new schemes and money laundering/fraud techniques become known, the need for a solution that can create new rules or establishes methods to discover new patterns, while also learning and deciphering new patterns automatically through self-learning capabilities, is critical.

The holistic reach of enterprise-wide solutions can blend information accumulated from different units in the organization and scrutinize disparate data to create a new class of business and customer intelligence. Integrated solutions at the enterprise level also have the capability to address

regulatory compliance and reporting needs while reducing cost.

They also lead to the re-designing of business and operational processes which, in turn, improve the quality of customer service, which can go a long way in increasing profitability and achieving credibility for an organization in today's uncertain world.

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Omkar Nisal

As Global Product Head for Universal Banking Platform, Omkar Nisal drives the innovation in the areas of Channels, Retail Banking, Compliance and Wealth Management, through a well orchestrated roadmap. He comes with over 14 years of experience in IT with a focus on banking, capital markets and insurance.



Vidya Ram

Vidya who is currently the Product Manager, Compliance, TCS B&NCS, has been working with TCS for past three years. She comes from a banking background with a total working experience of nine years. She is also an Indian Institute of Banking & Finance certified AML & KYC expert.



Dear Readers,

I hope you enjoyed reading this inaugural edition of the TCS BaNCS Research Journal as much as we enjoyed putting it together. We hope that this research journal from TCS BaNCS will serve as a bridge between academic theories and industry best practices and enrich your understanding of financial services and technology.

We thank each one of the authors who contributed to TCS BaNCS Research Journal!

TCS BaNCS Research Journal invites contributions from industry experts and research analysts to contribute analyses and research articles in areas related to banking, capital markets and insurance. Please write back to us sharing a synopsis of what you plan to write about and we will get back to you with more information about our editorial calendar and content for forthcoming editions.

Looking forward to hearing from you.

Warm Regards,



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Consolidating the custody business
to process 150,000 corporate events
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Enabling Link Up Markets to
reduce complexity in European
cross-border securities transaction
processing in eight months.

That's certainty



Link Up Markets is a joint venture by eight leading European Central Securities Depositories (CSDs). Link Up Markets wanted to simplify cross-border securities transaction processing and needed a common messaging platform to connect (link) various CSDs for simple, secure and cost-effective messaging and tracking along with access to reference data. Clearstream Services S.A. partnered with Tata Consultancy Services (TCS) in linking the CSDs by implementing TCS BANCs Solutions, Service Integrator and Corporate Actions. As one of the world's fastest growing financial services technology brands and an integrated product suite, TCS BANCs enabled Link Up Markets to validate, transform and route messages between the CSDs by absorbing differences and variations in communication standards across markets while also providing storage and web-based access of corporate actions and events data to the CSDs and their participants. Empowering Link Up Markets to look at increasing the current market share in cross-border settlement volumes within a timeframe of eight months. And, of course, enabling it to experience certainty.

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