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## J.P. Morgan Private Bank: Risk Management during the Financial Crisis 2008-2009

Mary Callahan Erdoes (MBA 1993), the chief executive officer of JP Morgan Chase's (Morgan) Asset Management, reflected on the financial crisis and its effect on her thinking about risk management:

Things happened in 2008 that no one ever contemplated. The crisis catapulted risk managers to a seat at the management table. They need to be asking the 'what ifs', to push, to iterate through various scenarios, to help us think through how to manage the business better.

Risk management could very much be driven by an old-fashioned, backward looking, check the box mentality. It keeps us safe by making sure we properly do the things we have always done. But, the problem is not the known risks, it is the unknown risks. And for this you also need highly sophisticated, highly savvy people who have market skills and who can think about the 'what ifs.'

### J.P. Morgan Private Bank

Morgan's Private Bank was among the handful of the most successful global private banking businesses and was known for its award-winning service and innovation.

At its core, the business of private banking was to provide "high-touch," highly tailored products and services to wealthy individuals and families. The focus of Morgan's private wealth management effort was on capital preservation, capital growth, liquidity, and the challenges of transferring wealth across generations. It offered a comprehensive suite of services and products, including investment advice, investment management and brokerage across a range of global products and markets. The Private Bank also provided estate planning and related advice, often acting as executors and trustees of its clients' estates, and offered services to assist clients in their philanthropic efforts, including managing associated funds. When appropriate, the Private Bank also made loans to clients. Morgan's private bankers saw themselves as problem solvers, often of complex cross-border problems, where discretion and innovation were crucial for success. At the end of 2007, the Private Bank generated \$3.7 billion in revenue, up \$1.6 billion from \$2.1 billion at year end 2004 (see **Exhibit 1** for Private Bank Revenues and Assets Under Management (AUM), 2004-2009). AUM were \$260 billion at year end 2007, up \$68 billion from \$192 billion at year end 2004.

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Morgan competed with a number of different private banking models. These included businesses, like Morgan's, that were embedded in larger banks: HSBC, UBS, and Credit Suisse were formidable competitors. Many securities firms also had units that catered to the very wealthy, including Goldman Sachs and Morgan Stanley. And there were also independent firms, like Bessemer Trust, Northern Trust, Pictet & Cie in Switzerland, and a multitude of small private firms. Each of these had somewhat different models, from those that offered only a single service like investment management or estate planning, to some that serviced the full range of client needs.

Erdoes, who was named as head of the Private Bank in 2005, reported to James Staley who ran Asset Management—one of the largest money managers in the world, with nearly \$1.6 trillion of AUM at year end 2007.<sup>a</sup> It contained the Private Bank, an institutional investment management business and a mutual fund business.

Erdoes, born and raised in Chicago, had a BA in mathematics from Georgetown University and an MBA from Harvard Business School. After early experience in investment banking and investment management, she joined Morgan in 1996 to work in the Private Bank as a fixed income asset manager.

The Private Bank served two client segments: its traditional "ultra-high net worth" client base (generally described as those with a net worth in excess of \$25 million) and "high net worth" clients (those with a net worth between \$5 million and \$25 million). There were a small number of "ultra high net worth" individuals and families globally. For example, in the U.S. there were approximately 49,000 individuals with a net worth over \$20 million in 2004 (see **Exhibit 2** for U.S. wealth pyramid). These clients ranged from heirs of long standing fortunes to technology entrepreneurs to hedge fund managers, located across the globe. They had diverse and complex financial needs and lifestyles, with markedly different tolerances for risk, and they could be quite demanding of their bankers. Erdoes explained: "Managing money is (just) one piece of our work. To do our job right we need to understand as much about a client's business and their personal needs as we can. We work collaboratively."

Consistent with the "high touch" nature of the business, there was a high ratio of private bankers to clients. The Private Bank employed over 7,500 individuals, of which nearly 2,000 were focused on creating and managing investment products and client relationship management. It had 118 offices globally. Erdoes believed Morgan had a unique advantage in serving its clients stemming from the bank's intimate client relationships. Bankers were able to collect and discretely share insights within this substantial network of well-informed and very wealthy individuals.

With the 2004 Bank One merger, Morgan actively began to develop the capability to serve "high net worth" clients. There were significantly more potential clients in this group than in the ultra-high net worth group, over 300,000 in the U.S. alone. While the needs of this group were similar in many ways to those traditionally served by Morgan, the same highly tailored relationship-intensive service and product set was not designed to meet the needs of this larger segment. There was a need for products, services and a relationship management model that satisfied client needs, but that could also be "scaled" to deliver a consistent client experience.

### *Investment Model*

The Private Bank had a differentiated model for providing its clients with discretionary investment management services. Most firms operated either an "open architecture" or a "closed architecture" investment platform. With an "open" architecture, the firm did not have its own investment capability and products, but evaluated those available from a variety of external sources

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<sup>a</sup> In October 2009 Erdoes was promoted to head Asset Management, reporting to the firm's CEO, Jamie Dimon.

and chose the ones that were best suited to client needs. The “closed” architecture model was one where clients came to the firm specifically because of its investment capabilities and style(s); these firms did not offer externally managed investment products.

Morgan’s Private Bank had developed what was internally termed a “managed architecture” model, where it offered both Morgan Funds and externally managed fund products. The notion behind this strategy was that clients who had access to Morgan’s extensive and widely recognized global investment expertise might be, in some circumstances, better served by external products. The internally available products could come from dedicated investment teams in the Private Bank or from the institutional or mutual fund areas of Asset Management. This strategy required that the Private Bank perform substantial due diligence not only on the external products that it offered to clients, but also on those that were internally generated. (See **Exhibit 3** for J.P. Morgan General Investment Principles Regarding the Use of JPMorgan Funds and External Managers.)

A Morgan relationship banker had the job of considering all the needs of the client and what the firm might offer to help satisfy those needs. These individuals often partnered with Private Bank investment specialists, who would work directly with clients to advise on investment strategy and products. In many cases, the Private Bank managed a client’s assets on a discretionary basis—that is, the firm had full authority to make the investment decisions within a well-defined mandate. Those involved in managing client money worked with a broad set of approved products. They used the insights of a strategy team led by the Private Bank CIO, Michael Cembalest, to consider the Private Bank’s views about opportunities and risks in the context of the specific needs and risk tolerance of a given client.

### *Risk Management Challenges*

The “managed architecture” structure created some unique challenges. The discretionary investment management platform in Morgan’s Private Bank was subject to fiduciary standards governing self dealing and conflicts of interest. Notwithstanding the fact that the “managed architecture” model was intended to be Morgan’s way of delivering the best solution to a client, the generic concern was to protect clients from having their funds directed to an internally managed fund where a firm would likely make more money while there might be better external options available.

The “managed architecture” model placed a greater burden on Morgan to demonstrate it was making the right decisions. To accomplish this, the Private Bank had a dedicated group that subjected all internal and external investment products, strategies and vehicles to due diligence. Those that passed this rigorous vetting process with high marks were added to the Private Bank’s investment platform. The due diligence group’s reviews of investment products were ongoing and it had the authority to remove a product from the platform at any time. In addition, the relationship bankers and investment specialists performed annual reviews of each client’s account to make sure that the products used in client portfolios were consistent with the goals agreed upon between the firm and client.

Joseph Regan, head of Risk Management for Asset Management, reported jointly to Morgan’s Chief Risk Officer, Barry Zubrow, and to Staley (and then Erdoes). Regan, who graduated from Saint Joseph’s University in Philadelphia, had worked at Morgan for over 20 years. He started in risk management functions and then spent time in Japan and Hong Kong before becoming the CFO of the Asset Management business in the late 1990s. While on his second assignment in Asia, Staley asked him to return to New York to take on the senior risk management role in Asset Management, which he did in February of 2009 in the middle of the crisis. (See **Exhibit 4** for the 2009 Organizational Chart of Asset Management Risk Management.)

From an overall Asset Management perspective, Regan's agenda focused on development of a market-oriented risk function. He explained, "We want a risk function that is capable of looking at the details within our portfolios to understand more about the market-related risks." Erdoes pointed out that Asset Management more broadly, and the Private Bank specifically, had begun to evolve to this model with the 2006 purchase of Highbridge Capital Management, a large hedge fund with a "market-oriented risk manager" who was a partner with the traders. Regan added:

Within Asset Management, including the Private Bank, management of risk/return profiles is primarily the responsibility of our portfolio managers. That's thoroughly instilled in our fiduciary culture as an investment management firm. I am aware of certain competitors who have aggressive independent risk management protocols where risk managers are authorized to "sanitize" a portfolio, meaning they could hedge a trade or reduce risk tolerances if they deemed it in the best interest of a client. We have a culture where the fiduciary obligation is embedded and engrained in the portfolio managers, and we rely on that as our primary protection.

But, we (Morgan's independent risk management) want to enable independent insight on the risks being assumed and raise the transparency and awareness of potential unintended risks. Regardless of whether these risks reside within funds, or client accounts, or even across our complex of investment strategies, we are seeking to be a second set of eyes partnering with the portfolio managers.

With respect to the Private Bank, Regan initially identified three goals. The first was to strengthen, where necessary, the traditional compliance-oriented monitoring that risk management had performed. In addition to monitoring the issues around fiduciary duty for the "managed architecture" model, Regan's focus included assuring compliance with investment mandates across all investment teams and products. This included monitoring that clients were obtaining the investment strategies they had agreed upon with the firm, which was often a product that incorporated a broader set of portfolio decisions. Additionally, he focused on the governing processes and support for the risk culture that were necessary to protect Morgan's reputation through its own actions, those of the firms it hired to provide investment products, and those of the clients that it served. Finally, there was a need for ongoing review of the operational risks in the Private Bank; to make sure that neither the clients nor the firm would suffer from breakdowns in documentation, clearing, settlement or reporting.

To support the development of independent market-risk analysis, Regan sought to address the need for a common language for risk within Asset Management. Portfolio managers within the Private Bank (and across Asset Management more broadly) defined and analyzed risk differently as was appropriate for their specific investment processes. Regan wanted a way to understand the investment risk analytics at the institutional level supported by common risk language and references. He said, "We want to have a set of metrics that we can rely on to observe changes in risks within investment portfolios. Regulators, clients and other interested parties, increasingly expect an independent risk function to have this capability." Regan also sought to create a mechanism (and culture) for affording Morgan's senior decision makers within the business timely access to comprehensive information on investment risk. This would counter the tendency of larger firms to compartmentalize information, thereby making it cumbersome to access at the moments when it was most needed.

Erdoes summarized Regan's essential roles as "bridging" the two risk management cultures of compliance/oversight and market risk awareness.

## The Global Access Portfolios

The first Global Access portfolio, established in 2005<sup>b</sup>, was among a select few funds that were managed within the Private Bank. The portfolio's original purpose was to provide a handful of Latin American clients with the "real time" benefits of the Private Bank's best investment ideas. Initially, the firm pooled money from these clients and created a fund that it managed on a discretionary basis. It was soon available to other Morgan clients, including those characterized as "high net worth." By year end 2007, there were \$3.5 billion AUM in Global Access. The team consisted of 15 professionals<sup>c</sup> in New York, London and Hong Kong.

Chief Investment Officer Richard Madigan ran Global Access from its inception. Upon receiving his MBA from New York University in 1990, he worked in investment banking and focused on emerging markets fixed income, currency and commodities, spending several years in Mexico and then New York. In 1998, he left emerging markets to become a money manager. In 2004, he became the strategist for Morgan's Private Bank in Latin America and a senior member of the Private Bank's investment team.

Madigan described the Global Access portfolios as "dynamic, multi-asset class portfolios." There were four key investment strategies within Global Access that were built based on those used by the Private Bank's investment strategy team: Balanced, Growth, Wealth Preservation and Hedge Fund-only. The strategies were constrained by broad mandates that defined the proportion of assets allocated across the main asset classes. For example, the Balanced strategy should have 40% invested in equities, 40% in fixed income and debt, and 20% in alternative investments; however, tactical portfolio asset allocations could deviate from these levels by up to 15%. Within these categories, the Global Access team had the freedom to choose the investments they believed offered the best risk-to-return characteristics for a particular set of clients. Unlike many investment products, the Global Access portfolios were not designed to beat market indices or benchmarks. They were designed to offer investors superior risk-to-return performance through the investment cycle. Georgiy Zhikharev, head of Global Access risk management, explained:

Our investment process is not benchmark oriented. Rather, it is built around optimizing risk budget utilization, which we generally view as the percentage of world equity volatility. In that line of thinking, the 'up/down capture ratios' are linked to the equity markets. For example, Balanced portfolios are expected to capture 60% of the MSCI World upside, but only 50% of the downside, provided that we are at 100% utilization of the risk budget. This sort of differential in 'captures' should deliver 55%-60% of equity volatility while capturing 80%-100% of equity returns over the cycle, and is likely to outperform equities in most cycles. Similarly, for Growth portfolios we have 75% up/65% down capture targets; and finally, Wealth Preservation is more like 35% up/25% down. The exception is the Hedge Fund-only strategy, which is measured against a benchmark: *HFRI Fund of Funds: Diversified index*. While absolute levels of capture may differ at various points in the cycle, and will depend upon the level of risk budget utilization we are running, one thing should be constant: capture of return must be better than the capture of volatility. The more we can achieve this, the more value we can deliver from a risk-adjusted perspective.

There were five teams in Global Access, each overseen by a portfolio manager who reported to Madigan and each was responsible for investment results. The teams were built around specific client needs, based largely on geography and client segments: Onshore U.S., Onshore Europe, Offshore,

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<sup>b</sup> Established as a Cayman segregated portfolio company and privately offered to select clients.

<sup>c</sup> 30 by 2010.

Alternative Asset only and U.S. Mutual Funds. By September of 2010, these five teams managed 23 separate portfolios, each based on one of the four investment strategies and designed to satisfy the particular needs of a certain set of clients.

Madigan and his five portfolio managers, supported by Zhikharev, made all key investment decisions for all Global Access portfolios, with Madigan having the final vote. These decisions included asset class underweights and overweights, passive and active risk budget allocations, manager selection and tactical rotations. Each portfolio manager was then responsible for translating those decisions into the investments most appropriate for the strategies in his/her team. Selection of implementation vehicles, timing of the rotations and cash management were among the portfolio-specific decisions they made.

### *Risk Management in Global Access*

Madigan required each of the Global Access portfolio managers to have a view about the trading and risk environment. He emphasized:

I am unapologetic as a boss and a colleague when someone does not have a view. You can change your view every minute, based on information. What you cannot do is say to me, 'this thing has just happened, what does it mean?' Everybody has to have a view the minute they walk in the door.

He wrote *Market Thoughts*, a quarterly newsletter to investors, in which he underlined the importance of view formation:

There is a degree of humility and staying power that should come with managing money; you need to know what you can't know. Markets by definition are uncertain; however, that does not preclude having a view. The view is essential. So where do we think we are heading?

Madigan expected not only portfolio managers, but also risk managers to have a view too. In Global Access, he wanted risk managers to serve as strategic partners.

Global Access' risk oversight operated in two teams. The first was the independent oversight function run by George Lencyk, who was responsible for risk management oversight across all the investment activities in the Private Bank; he reported to Regan. When Global Access started out, the independent risk team worked on the initial new product approval and drafted limits for the portfolio managers. Subsequently, the team monitored trade approvals, product suitability, and investment performance. It also ensured that the governance processes were sound and compliant with regulatory standards.

The second team, a new development within the Private Bank, was a precursor to Regan's broader goal of evolving the investment risk management function throughout Asset Management: this positioned risk management as a "business partner." From the business risk management team, Madigan recruited a market-oriented risk professional, Zhikharev, to become a risk advisor to his team of portfolio managers. Zhikharev, born in Kazan, Russia, was educated at Kazan State University and earned an MBA in Finance from DePaul University in Chicago. He had had nine years experience in market risk management when he joined Morgan in 2001. Madigan explained the rationale behind Zhikharev's appointment:

I looked really hard for a risk manager. Georgiy was the one. When we were undergoing a new product approval internally, he was the one guy in the room who was giving me a hard time, the whole time. 'Can you explain that chart? I really don't understand this one.' By the time we walked out, I said we're going to hire him. He has a passion for markets. What also

won me over was that early in his career (1998), Georgiy worked in Moscow with an asset management company while Russian markets exploded around him. That experience is hugely important.

Since 2007, Zhikharev and his team of three have worked closely with Madigan and the Global Access portfolio managers to help them think more deeply about the risks across positions, with the goal of improving overall returns and protecting the portfolios from major downside shocks.

Zhikharev explained his role:

Allowing any team to run \$9 billion<sup>d</sup> requires a lot of trust. My colleagues in independent risk management who sit outside the Global Access team don't necessarily have the proximity and real time visibility of what trades and risks are being taken. So we want somebody on the inside looking out for everybody's interest, and that person is me.

I am not managing portfolios. I serve as a close business partner to portfolio managers. I'm the team member responsible for keeping portfolios in alignment with both broad Private Bank-level policies, such as Investment Review Committee process, fund concentration limits, counterparty exposure limits, bite sizes, etc., as well as Global Access-specific, market-risk related items such as trade approvals, portfolio risk analysis, positional concentrations, etc. Market risk is my primary responsibility, but I also liaise with the independent risk team on Private Bank policies. On one hand, I am there to make sure we are okay with every single risk process within the Private Bank. On the other, my role is to keep portfolio managers honest: 'Do their portfolio positions reflect their views?' I can tell them, 'Look, you are bullish on Japan but you don't show it in your portfolios.' I listen to their views so I can help them fine tune what they should sell and buy in order to reflect their views in their portfolios.

Regan recognized that having Zhikharev operate in these two risk management spheres might not be optimal over time. He commented: "I think that given today's regulatory environment and against the backdrop of what I described as the intrinsic conflict with 'managed architecture,' we'll probably have to declare Georgiy part of Richard's group or truly independent. Regardless, we like the concept of 'embedded risk managers' who are subject matter experts and work closely with the portfolio managers. We are investing in technology that will enable more seamless integration between the embedded risk managers and the independent risk team."

### *The New Risk Tool*

The traditional tools to measure the market risk embedded in client portfolios were unsatisfactory to Madigan and Zhikharev; these included the mandated constraints on how much of any single broadly defined asset class could be included in a portfolio as well as measures of the volatility of returns in the portfolio. Like virtually all of Wall Street, they had also used "Value at Risk," or VaR, as a way to understand the riskiness of a portfolio in terms of the expected value it would lose under highly adverse conditions.

VaR, developed in the early 1990s, was an estimate of the maximum loss of an asset or portfolio during a specified time interval, at a specified (small) likelihood; the standard being either a 5% or 1% chance of occurrence. It was intended to provide risk managers with a simple way to consider the "realistic worst-case loss" of an asset or portfolio, and was a relatively straightforward way to communicate to non-risk managers. For example, in the case of an asset or portfolio with a five-day, 99% VaR of \$50 million, there would be an estimated 1% chance of a loss exceeding \$50 million over

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<sup>d</sup> As of June 2010.

the next trading week. Like all statistical tools, VaR had its limits; the estimated loss was based on historical data, and the model assumed that gains and losses on the assets were “normally distributed.”<sup>e</sup>

Zhikharev was one of many skeptics who maintained that asset values in fact followed other, hard-to-model distributions, which shared one thing in common: They had much “fatter tails” than the normal distribution. In addition, “VaR doesn’t indicate the severity of loss beyond the threshold” (the indicated dollar loss at the likelihood modeled). Hence, VaR could seriously underestimate risk giving managers a false sense of comfort. Zhikharev maintained: “I don’t believe that VaR is a highly useful metric of risk in the asset management industry. It basically tells you the average bad case in a normal environment.” Quoting Madigan, Zhikharev continued, “In normal months it is scaring us too much. In bad months, it is not scaring us enough.”

To more accurately measure risk, Madigan identified eleven market factors that he considered to be essential to the Global Access investment decision process. These included the direction of rates, credit spreads, volatility, equities and commodities. The data for each of the eleven factors was widely and easily available. Madigan and Zhikharev sought a risk tool that would link the Global Access team’s views of these eleven factors with the outcomes and risk of the portfolios. Zhikharev spearheaded the effort to create it. This tool ultimately became known as the “Global Access Risk Factor Model” (Model). (See **Exhibit 5** for a list of the eleven factors in the Model.)

The Model provided Zhikharev with a tool with which to discuss proposed trades with the portfolio managers. He explained:

The Model is the translation between the views and the portfolio positions. It keeps everybody honest. So when portfolio managers come to me with three trades, the model says all three trades are adding to the same type of risk. Nine times out of ten the manager says, ‘No, that’s not what I was trying to do.’ Then, we can sit down and redesign the trades.

The Model also allowed them to understand the potential downside in the portfolios from highly unlikely but potentially devastating events—instances when normal market assumptions did not hold true. One such example was the correlation of returns among different assets classes, such as stocks and bonds.<sup>f</sup> This type of stress testing resulted in what they called the Estimated Tail Loss (ETL).

The model enabled Global Access team members to speak the same language when it came to risks and returns. As Madigan explained, “I’ve got people in Hong Kong, London and New York. I need to make sure they all speak the same language, that language is risk.”

Zhikharev reflected that the model, designed to help portfolio managers create trades in light of their risk implications to the portfolio, was “part science, part art.” He elaborated:

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<sup>e</sup> In real life the assumption of “normality” was very often violated. Two examples of non-normality were when there was a greater probability of extreme events than implied in a normal distribution (“fat tails”), and when there was a different chance of upside than downside in the asset’s values. Non-normality could render the results from statistical models inaccurate if not corrected.

<sup>f</sup> Historically, the values of securities in different asset classes (e.g., equities, bonds, commodities, real estate) reacted to new information differently; their returns were not perfectly correlated. Modern portfolio management theory suggested that asset managers could exploit this historical lack of correlation to construct investment portfolios that had higher returns with less market risk (the “efficient frontier”). During the financial crisis, there were periods when the returns on different asset classes moved in unison, violating the basic assumption in portfolio construction and resulting in major losses for investors. For a more detailed explanation of portfolio theory and correlation see, “Introduction to Portfolio Theory,” Andre Perold, HBS Case No. 9-185-066, published October 16, 1984; revised February 20, 2007.



The Model tells us, roughly speaking, in percentage terms, where we are taking our risks. I think that many models have been mis-specified in the financial industry because the underlying markets and processes are very complex. Many modelers, I believe, lack a little bit of humility to admit that the process they are trying to model is infinitely more complicated than any model can grasp. Excessive complexity, on the other hand, poses a risk of losing connection to the ultimate user of the model, the decision maker.

We feel very comfortable that our Model has been designed with the ultimate user in mind. It was created for Richard (Madigan), with him as the decision maker in mind. It is tailored to the investment process we have. Richard states his risk appetite in very clear terms: 'I want total risk utilization to go up by 5%.' Or: 'I want my beta to go up by 0.02<sup>g</sup>. Or: 'I want to rotate 5% of risk out of Emerging Markets to U.S. Large Cap.' So the portfolio manager and I can create trades that fulfill these requirements. By the time the portfolio managers pitch the trade to Richard they don't have to quarrel about 'well, that's going to put too much risk in the portfolio.'

Overall, Madigan and Zhikharev were clear that the Model was a tool to enhance the judgment of the Global Access team, not to replace it. Madigan and his portfolio managers had to develop views about their outlook for the eleven factors, which they would be refining constantly as a natural part of managing investments. The Model allowed them to understand how changes in these views could impact the sensitivity of their portfolios, and they used the Model to adhere to a view that was consistent with their risk tolerance.

## Risk Lessons from the Financial Crisis

In the summer of 2007, the storm clouds of the impending financial crisis gathered. There was a growing realization that the housing market was well past its peak and in decline. Two Bear Stearns hedge funds which were heavily leveraged and that invested in the mortgage market failed and were absorbed into J.P. Morgan. A number of hedge funds involved in "statistical arbitrage" suffered heavy losses. By the end of 2007, however, the markets had calmed down leaving many to conclude that the worst was over. By September of 2008, everything had changed: a crisis erupted. Lehman was allowed to fail, AIG came perilously close to collapsing before the U.S. government bailed it out, Goldman Sachs and Morgan Stanley became bank holding companies and sought substantial additional capital, and the oldest money market fund "broke the buck" and halted redemptions because it owned substantial amounts of Lehman commercial paper. Overnight, the world's financial institutions became very wary of lending to one another because of uncertainty about the quality of the assets on "the other guy's" balance sheet. In September, the "TED spread"<sup>h</sup> shot up from 109 basis points (bp) on the 1<sup>st</sup> to 313bp on the 30<sup>th</sup> and the S&P 500 fell 9.1%. (See **Exhibit 6** for graphs showing the performances of the MSCI ACWI (All Country World Index) and S&P 500, January 2007 through June 2009 and **Exhibit 7** for a chart of the TED spread over the same period.)

### *The Private Bank*

The financial crisis brought to the fore several areas of risk that required a new level of attention across the financial system more generally, and within Morgan's Asset Management and the Private Bank more specifically. In large part, these risks related to the nature of the relationships with

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<sup>g</sup> Exposure to the market index, rather than an investment with particular risk / return characteristics.

<sup>h</sup> The TED spread was a measure of the risk in the banking system. It was the difference between 3-month LIBOR, a proxy for the rate banks charged to lend to one another, and 3-month U.S. treasury bills, the risk-free rate.

“counterparties,” entities such as broker-dealers, with which Morgan did business to execute its investment activities. The first issue was enhancing the ongoing assessment of the credit quality of the counterparties involved in transactions. Whenever two parties entered into a financial transaction where there was a promise to pay—whether in a few days, as in the case of a sale of stocks or bonds, or in many years, as in some derivative contracts, “counterparty risk” occurred. That is, there was some chance the counterparty would not deliver the cash when required. Regan was particularly concerned about firms that did substantial amounts of derivatives business with the Private Bank and its clients; if these counterparty firms failed then the Private Bank or its clients could suffer losses.<sup>i</sup>

The second issue was improving the ability to gain access to any collateral that was posted by counterparties as a requirement of trading with Morgan. This process required making sure Morgan knew where the collateral was held (in internal Morgan accounts or at a third party institution), that the proper documentation was in place allowing for Morgan to take possession in the event of a default under the terms of the particular trade, and that there was an internal Morgan process (and accountability) for seizing the collateral if and when it became necessary. The issue of locating the right securities and making good on the claim in the event of a firm failure was made trickier because securities held as collateral, either directly or in third party firms, were often lent to other firms on Wall Street for a small fee.

The final issue to address was to understand the extent to which fund managers, both internal and external, had potentially “drifted” away from their respective investment mandates. This could occur as a result of substantial market moves and liquidation requirements, which moved their portfolios out of the desired balance. It could also occur because managers might violate the mandate they were given by investors in search of gains in such tumultuous markets.

Erdoes explained that during the crisis, both the risks to the franchise and the opportunities to expand it increased substantially. To manage the downside, and try and capture the upside, the conversations between the private bankers and the firm’s clients grew dramatically during this time. She said, “The goal was to get information to clients and to ask questions, as well as to answer questions. Clients are partners in the decision process, and we tried to keep everything as much in ‘real time’ as possible.”

## *Global Access*

### **2008**

By the start of 2008, Global Access had moved to a very defensive position, significantly reducing its allocation to equities and raising cash. This move caused the portfolios to underperform into the summer. While unhappy with the early call on the market, Madigan remained convinced that trouble lay ahead. Among the actions that he took during the summer of 2008 was to shift equity exposure for the Global Access portfolios from long-only equity funds and single strategy hedge funds into multi-strategy hedge funds.<sup>j</sup> For the first eight months of 2008, the Global Access portfolios captured

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<sup>i</sup> Most of the private banking clients’ derivative exposure came from its use of “structured products” for client portfolios. Structured products were derivative transactions that allowed portfolio managers to create tailor-made instruments based on a precise view of an asset or combination of assets. These products gave rise to credit exposure for private banking clients because the return to the Global Access portfolio did not come from an asset it held but from the payment from the financial firm providing the product, if and when the specific return scenario was realized. If the counterparty firm had gone out of business the Global Access portfolio would likely not be paid.

<sup>j</sup> The rationale for this move was to shift assets to those managers most able to react to rapidly changing market conditions by shifting sectors and by creating short positions in certain securities and sectors in anticipation of their decline in value.

about equal amounts of the market's return and its volatility (see **Exhibit 8** for the returns and volatility of each strategy 2008-2009).

Like almost all other investors, Global Access had a horrible September. In a more moderate downturn, the move into multi-strategy hedge funds and out of long-only equity funds might well have worked to Global Access's advantage; but these were not normal times. Like most investors, they had not foreseen the perilous condition of the financial system and the extreme moves in the markets. There was intense selling pressure on all assets, regardless of their quality, as investors sought liquidity. This created a "vicious circle" of self-reinforcing selling, as investors desired even greater liquidity as asset prices plummeted. As Zhikharev said, "We did not expect the hedge funds to have this amount of tail risk in September and October." During this period, the value of most hedge funds was crushed. "They didn't think about what would happen if the liquidity premium went up ten times," Zhikharev reflected.

Madigan and the team adjusted the portfolios significantly in late 2008 and early 2009. Their view was that the stresses in the market were likely not only to continue, but to worsen, with credit spreads widening, equity prices falling and liquidity at even more of a premium. They reduced the risk in the funds to their lowest level ever. Equities comprised 25% of the Balanced portfolios, the lowest allowed under the mandate. Cash was at 30%, the highest ever. Madigan said, "We didn't trust bonds, we didn't trust counterparty risk, we didn't want credit. If the world was getting really bad we knew we had enough cash." During the final quarter of 2008, in the middle of the crisis, the portfolio decisions resulted in a substantial decline in the amount of market volatility capture in each strategy; which further resulted in lower capture of the negative market returns.

The Model had been rolled out in the summer of 2008, and throughout this period, it performed as hoped. It provided Madigan and the portfolio managers with a better understanding of how specific changes in the portfolios would affect the level of risk, allowing them to make sure the portfolios were in synch with their views of the macro environment. The Model accurately calculated the "tail risk" in the portfolios, correctly forecasting the losses incurred during September-October, a period of unprecedented turmoil in the markets.

## 2009

Unlike some in the market, as 2009 began, the Global Access team was not convinced that the market had reached a bottom. They even debated whether they should seek permission to break their mandate and raise cash beyond the maximum allowed, but ultimately decided against it.

By the end of March, Madigan came to believe that the markets had likely bottomed. He described the team's thinking: "At some point in time, we began to see things as binary: Either this country is going to hell or things are going to start improving." However, the Model indicated that a move to reintroduce substantial risk into the portfolios would generate significant ETL. They decided to "tip-toe" back into the market through a combination of: 1) downside-protected trades, where downside was limited to the value of the total premium paid, but there was upside potential if their view was correct; and 2) by quickly taking gains and cutting losses. In addition, they looked at trades with strong fundamental value: "We bought the really easy low-hanging fruit. We went out and bought municipal bonds. We bought investment grade credit. We bought stuff saying the world has to end at this point for us not to believe there is value in this." Madigan described the strategy, "cutting risk happens in several stages, so does adding it back."

By May, Madigan was ready to fully commit to the market and significantly raise the risk in the portfolios, which was accomplished by the end of July. For the year 2009, the Global Access portfolios captured significantly more of the market's upside, almost twice as much, than of its volatility.

Zhikharev reflected on the lessons he learned from the crisis:

We usually talk of three lessons: 1) The power of liquidity, both in terms of getting out of the avalanche's way and having significant resources to reallocate when the outlook improves; 2) staying dynamic, as volatility spiked above 40k there were intra-day opportunities for profit-taking and rebalancing; and 3), sticking to the view, Richard likes to talk about 'knowing what you don't know' and 'not chasing the bottom,' but spending time on 'identifying the inflection points.' Both of these principles had certainly been behind cutting risk, staying low on risk longer than many, and getting back in early enough to capture upswing.

Madigan added:

The responsibility entrusted to money managers demands an understanding of both opportunity and horizon: How much can you make, how much can you lose, and how long do you have to invest. It's ultimately about the consistency of compounding returns, not about 'bungee-jumps' in performance. The money managers that suffered most in the 2008/2009 crisis were the ones that blindly relied on inadequate risk models and methodology or static strategic-asset allocation to excuse them from having a view. Everything starts with a view. The trick is balancing the art and science in that view. The art comes down to judgment and experience. The science ultimately comes down to the language of risk, but as an embedded part of the investment process, not as an accounting or reporting mechanism. The relationship between the two is crucial. Risk management integrated into the investment process keeps the view honest.

At year end 2009, Global Access had \$6.9 billion in assets. The Private Bank generated operating income of \$1.3 billion in 2009, on revenues of \$3.9 billion, and its AUM was \$256 billion. During 2008 and 2009, they had added an estimated 7,000 new clients.

Regan reflected on lessons in sustaining an effective risk culture:

The lessons coming out of the crisis for me generally amounted to some lessons relearned. Our Chairman and CEO, Jamie Dimon, has been quoted as suggesting that financial crises occur with more regularity than we would like. The hallmark of effective risk management is not only a sustained risk aware culture—that's obviously important—but also continuous investment in appropriate resources including people, technology and solutions. Risk management is often defined as the active attempt to mitigate the effects of the unexpected. Being prepared and continuing to plan what could go wrong, even when things are going well, is one of the features that distinguishes the more successful firms over time.

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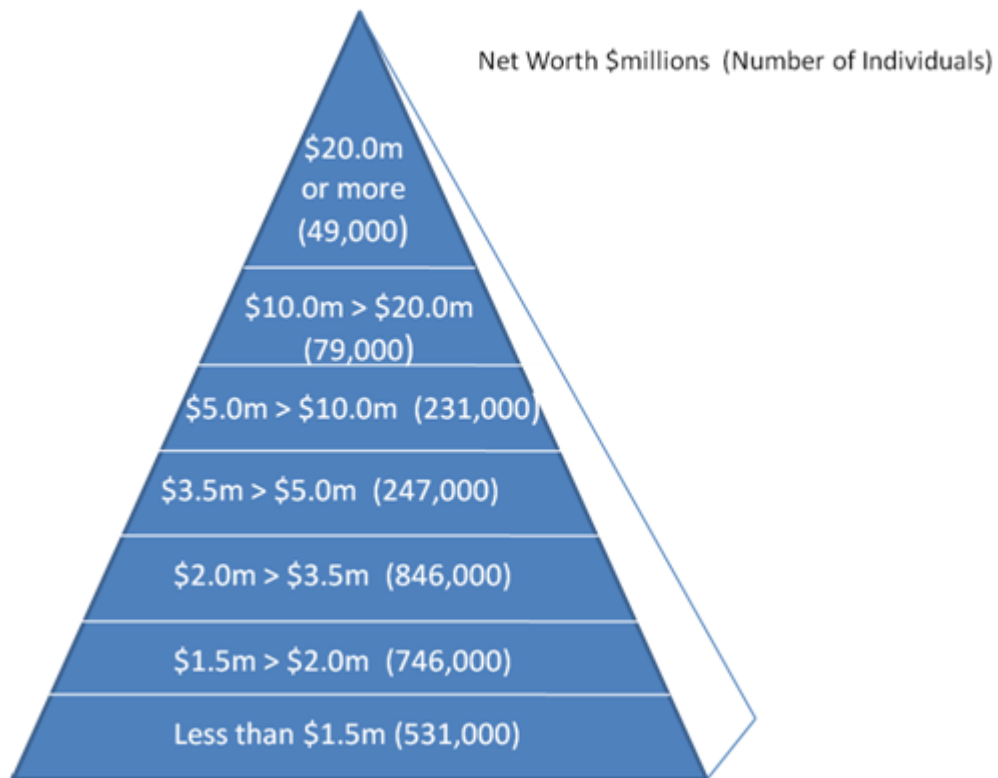
<sup>k</sup> Volatility was measured by the VIX index (see Exhibit 9 for a 5 year chart of the VIX).

**Exhibit 1** Private Bank Revenues and Assets under Management (2004 to 2009) US\$ Billions

	2009	2008	2007	2006	2005	2004
Revenues	\$3.9	\$4.0	\$3.7	\$2.9	\$2.7	\$2.1
Assets under Management	\$256	\$252	\$260	\$216	\$197	\$192

Source: Company.

**Exhibit 2** U.S. Wealth Pyramid—2004



Source: Casewriter. Data from SOI Tax Stats - 2004 Personal Wealth Tables, IRS, Statistics of Income Division, August 2008, at <http://www.irs.gov/taxstats/article/0,,id=185880,00.html>, accessed August 10, 2010.

### Exhibit 3 J.P. Morgan General Investment Principles Regarding the Use of JPMorgan Funds and External Managers

#### **J.P. Morgan general investment principles regarding the use of JPMorgan Funds and external managers**

The following investment principles express our general philosophy for investing client assets and serve to guide our mutual fund investment activities on behalf of our clients:

1. The principal activity of J.P. Morgan Asset Management is managing our clients' money. J.P. Morgan Asset Management also provides investment advisory services for the JPMorgan family of mutual funds ("JPMorgan Funds").
2. Our overarching investment objective is to deliver the best risk-adjusted returns appropriate for the financial goals and risk tolerances of our clients. We have found that the best risk-adjusted returns are based on a combination of consistent strong performance and prudent diversification of asset classes, managers and styles.
3. Built upon generations of experience serving as a trusted advisor, we are one of the leading asset managers in the world with more than \$1 trillion in client assets under management.\* As a result of our intense focus on hiring and nurturing talent, our investment professionals are among the best in the industry.
4. Where we have demonstrated expertise in a particular asset class, we prefer to use J.P. Morgan-affiliated managers for the control, compliance and daily oversight that are associated with being part of the firm.
5. Where we are unable to offer demonstrated expertise in an asset class, or seek diversification of managers, we will choose qualified managers who are not affiliated with J.P. Morgan. Our own investment management expertise gives us a distinct advantage in evaluating external managers' ability to generate the desired risk-adjusted returns in the future.
6. None of our professionals at J.P. Morgan are paid on a commission basis. Instead, our professionals are paid a salary plus discretionary bonus related to their performance in serving our clients, working as partners with colleagues, and based on the financial performance of our Asset Management businesses. The amount of revenue resulting from sales of products to clients may be considered as one of several factors in determining a client-facing professional's bonus. J.P. Morgan Asset Management may receive more revenue from sales of JPMorgan Funds than from sales of funds managed by external parties, because it receives compensation for providing JPMorgan Funds with investment advisory, administrative and other services. The decision to use external managers or JPMorgan Funds for a particular asset class is made by our Investment Strategy Team, whose compensation is based on investment performance, not on revenue targets.
7. Our reputation for integrity rests on how we balance the interests of our clients, our fellow employees and our shareholders.

\* Based on assets under management for the J.P. Morgan Asset Management division of JPMorgan Chase & Co. as of September 30, 2008. J.P. Morgan Asset Management includes Asset Management, the Private Bank at J.P. Morgan and Private Wealth Management at J.P. Morgan.

*Investors should consider the investment objectives, risks, charges and expenses of mutual funds carefully before investing. This and other information are contained in the fund's prospectus, which may be obtained by contacting your J.P. Morgan Advisor or JPMorgan Distribution Services, Inc. at (800) 480-4111, or online at [www.jpmorganfunds.com](http://www.jpmorganfunds.com). Please read the prospectus carefully before making an investment decision.*

JPMorgan Funds are distributed by JPMorgan Distribution Services, Inc., which is an affiliate of JPMorgan Chase & Co. Affiliates of JPMorgan Chase & Co. receive fees for providing various services to the funds.

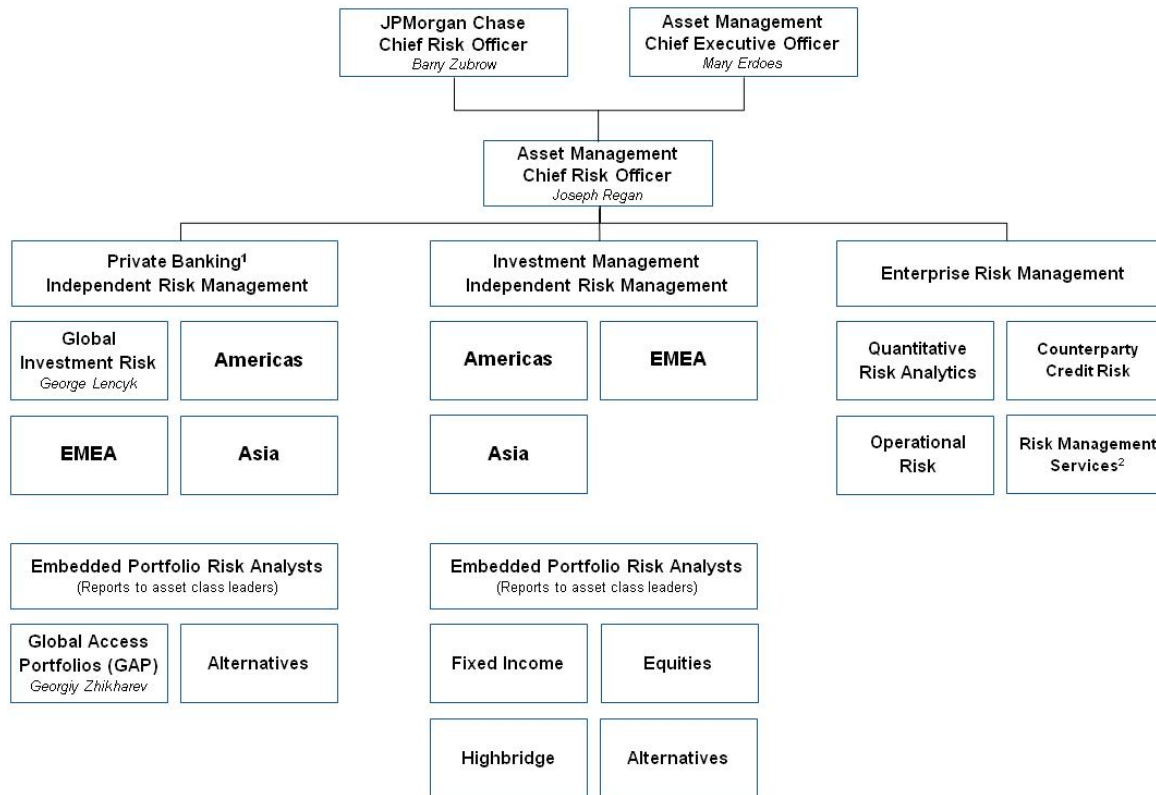
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Source: Company.

**Exhibit 4** Organization Chart AM/PM Risk Management



<sup>1</sup>Private Banking Credit Risk reported directly to JPMorgan Chase Chief Risk Officer.

<sup>2</sup>Supported risk governance, risk technology, and special projects.

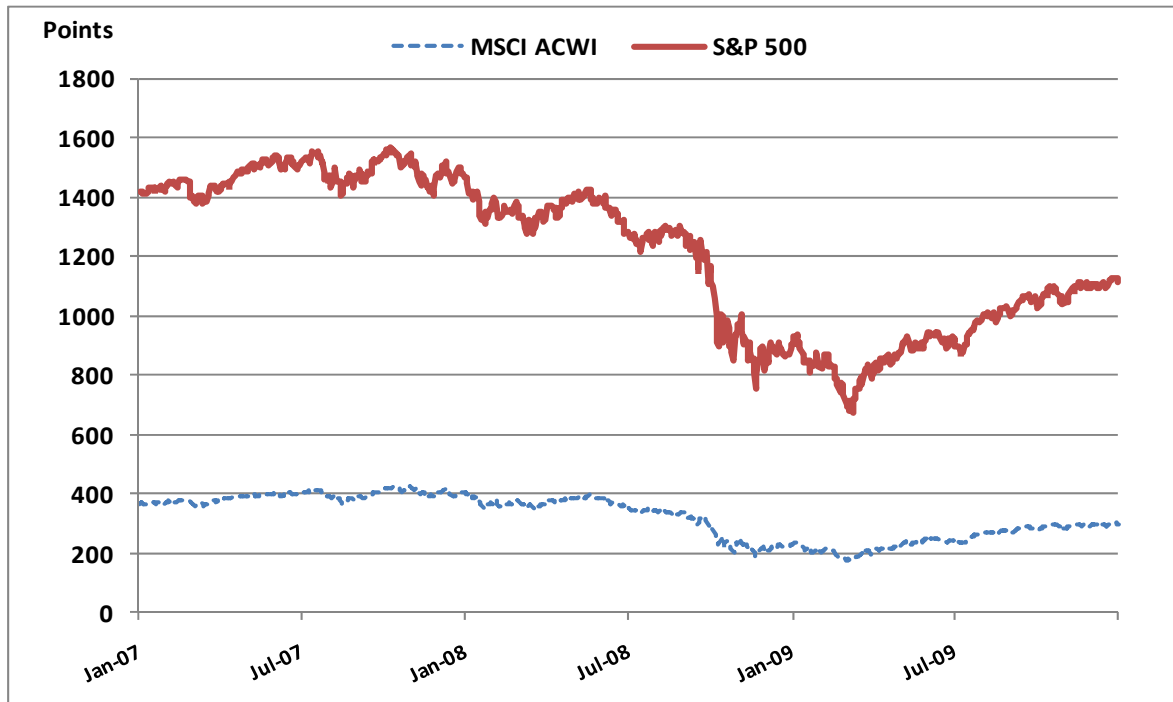
Source: Company.

**Exhibit 5** Eleven Market Factors in the Global Risk Asset Model

Factors	
1	S&P500 Index
2	Russell 2000 Index
3	MSCI EAFE Index
4	MSCI Emerging Markets Index
5	CBOE Volatility Index – VIX
6	10 year U.S. Treasury rates
7	High Yield Corporate Credit Spreads
8	Trade-weighted USD Index
9	S&P GSCI Total Return Index
10	1-month LIBOR
11	U.S. CPI Urban Consumers MoM% Change Index

Source: Company.

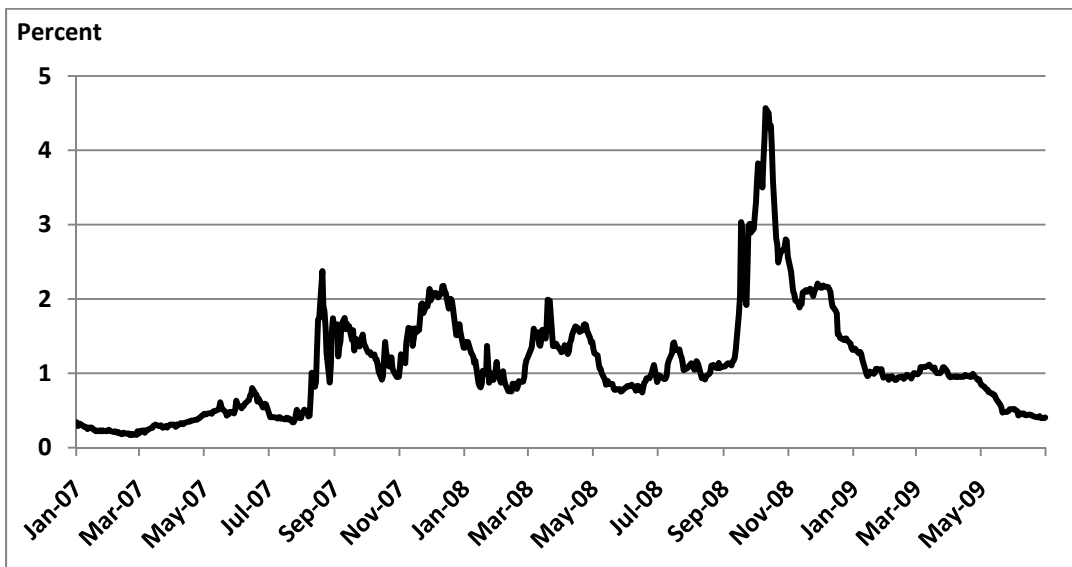
**Exhibit 6** MSCI ACWI and S&P 500 Market Performance (January 2007 thru December 2009)



Source: Thomson Reuters Datastream, accessed August 2010.

Note: The MSCI ACWI (All Country World Index) Index was a free float-adjusted market capitalization weighted index that was designed to measure the equity market performance of developed and emerging markets.

**Exhibit 7** TED Spread January 1, 2007 to June 30, 2009



Source: Thomson Reuters Datastream, accessed August 10, 2010.



**Exhibit 8** Global Access Performance: “Capture” of Risk & Return

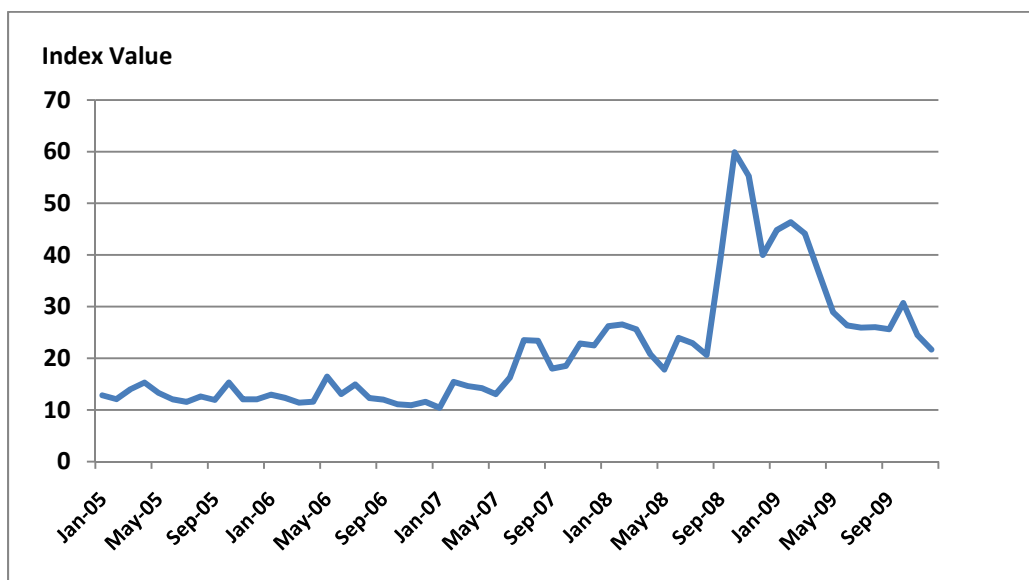
	Jan '08 – Aug '08	Sep '08 – Dec '08	Jan '09 – Dec '09
<b>RET %</b>			
WPF	31.37	21.71	34.11
BPF	55.46	51.71	58.01
GPF	67.57	67.51	72.87
<b>VOL %</b>			
WPF	31.08	24.42	13.75
BPF	56.12	43.58	26.80
GPF	71.90	55.92	40.74
<b>MSCI %</b>			
Return	-16.28	-31.98	31.49
Volatility	16.17	51.63	22.96

Source: Company; MSCI data from Thomson Reuters Datastream, accessed August 2010.

Note A: WPF is the Wealth Preservation strategy, BPF the Balanced strategy and GPF the Growth strategy. RET % means percentage of the return for the MSCI World Index and VOL % means percentage of the volatility of the MSCI World Index.

Note B: For informational purposes only. Past performance did not guarantee future performance. This information was not intended as an offer or solicitation for the purchase or sale of any financial instrument

**Exhibit 9** VIX, January 1, 2005 to December 31, 2009



Source: Thomson Reuters Datastream, accessed August 2010.