Climate Change Revisited: Size Matters

Back in the Cretaceous Period, the heyday of the dinosaurs was well underway. These huge creatures ruled their world and surely expected to continue to do so for a long time. Bigger was truly better. And then, largely out of the blue, they were wiped out, perhaps due to a large meteor hitting the earth and roiling their environment forever. Only the smallest animals that were the right size and could adapt faster, like birds, survived.

In the investment management world, firms with the largest amount of assets may be facing a similar fate as it relates to being able to find suitable and profitable fixed income investments. The analogy here is our own, but the concern we raise is broadly shared by official institutions such as the International Monetary Fund (IMF), which has recently produced its own analysis on this topic.¹

In our June 2014 white paper, “A Climate Change for Bonds”, we discussed how the end of a 30-year secular decline in interest rates, followed by a period of low rates, would influence investor behavior. We believed that investors would seek to develop strategies to find new sources of excess returns and alpha.² From these low yield levels, bond investors may no longer be able to rely on long-term returns generated by a persistent trend toward lower yields. Our solution was to employ unconstrained strategies, when compared to a passively managed index strategy, that provide opportunities for reduced correlation, add alpha and excess returns potential and help reduce risk.

² “A Climate Change for Bonds”, Caron, Jim and Spaltro, Marco. June 2014. MSIM. Alpha is a measure of performance on a risk-adjusted basis.
In this piece, we would like to focus on another secular change impacting the markets which we believe to be essential in factoring into investment decisions. We are referring to the increase in the regulatory environment that seems to be leading to reduced liquidity. This represents a tectonic shift in the investment landscape that we have known for the past three decades and not solely for the asset valuations but also for those who manage them.

Valuations for assets that have favorable regulatory status exceed those that do not. This will influence how liquidity providers behave and select which businesses to emphasize and which to de-emphasize, or perhaps even exit all together. It will also impact asset managers, because if they are very large, then they may have difficulty accessing a broad universe of positions, what we refer to as an investment opportunity set, needed to create an efficient frontier of risk and a diversified portfolio. Effectively, the investment opportunity set for the larger players has shrunk, thus making it more difficult to add uncorrelated risks and create alpha. Even though larger asset managers may be impacted disproportionately, no manager will escape this challenge. Those who allocate investments into fixed income must adapt to the new and prevailing market conditions when constructing portfolios, selecting assets and managing risks. The medium-sized managers, who have the analytical tools to evaluate opportunities and have demonstrated success in flexible management strategies, are at an advantage to not only survive, but thrive, in the changing climate.

As we know, the design of the new regulatory environment was borne out of the financial crisis as a way to make the financial system more secure and less likely to repeat the conditions that created the last crisis. What has been sacrificed along the way, however, is the true economic valuation of an asset whose price is independent of regulatory influence or central bank manipulation. This needs to be properly accounted for when evaluating investment opportunities and making asset management decisions in the new climate.

Our goal in this white paper is not to provide an opinion on the current regulatory environment but rather to describe how we are adapting our analytical tools and decision-making process to the challenging and changing investment climate. Let us begin.

Sizing it up

Size matters, but sometimes not for the better. When rates were trending lower, more assets under management (AUM) were arguably more desirable. Larger inventories of bonds afforded economies of scale to those who managed them and increased income as yields fell. The size of a strategy was not necessarily a risk factor to its potential performance. But the time for that scenario has since passed. When yields fall to very low levels and fail to provide a required return, or worse, if yields rise, then this process works in reverse. This is a key point of climate change in the fixed income market. Bigger AUM may not be better. Finding the optimal size AUM for a strategy may have a much bigger impact on its potential performance.

A paper written by the Bank of International Settlements (BIS) in November 2014 highlighted this change and the associated risks. The BIS reported that there has been extraordinary growth in AUM for investment funds since the 2008 financial crisis. They observed that worldwide growth in net assets of mutual bond funds rose by approximately $3.1 trillion and now account for some $7.4 trillion in total, up almost 74 percent since 2008.3

The BIS further reports that AUM in the private sector has become increasingly concentrated in a few large market players. The total net holdings of the 20 largest asset managers alone increased $4 trillion to $9.4 trillion from 2008 to 2012, accounting for about 40 percent of their total net assets ($23.4 trillion). Subsequently, these large managers accounted for more than 60 percent of the AUM of the 300 largest firms in 2012.4

To illustrate more specific examples, according to data provided by the Securities Industry and Financial Markets Association (SIFMA) as of December 31, 2014, the U.S. corporate bond market grew by 50 percent since the crisis from $5.2 trillion to $7.8 trillion. Mutual funds rose to manage 21 percent of total assets from 13 percent pre-crisis. Growth in European assets is no less remarkable. Total assets managed by euro area funds rose to €9.2 trillion as of December 2014, a near doubling since 2007. The net asset value of European bond funds stood at €2.74 trillion in 4Q 2014.5

The BIS, SIFMA and ESMA, along with many other official institutions, have drawn attention to the risk that investment decisions made by the largest asset managers with concentrated risks could have great impact on market liquidity conditions in the future. Additionally, this may have an adverse effect on their ability to hedge risks and their overall performance when market volatility arises.

Liquidity and regulation: A different world

There has been an onslaught of financial regulation with the intention of preventing a repeat of the events that lead to the financial crisis. The number of new regulations is too many to enumerate and goes beyond the scope of this paper. For brevity, we will restrict our focus to major financial institutions (MFIs), such as large banks because they are a major provider of financial market liquidity. In order to reduce the complexity of the scope of regulation, we have placed these requirements into

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Increasing regulation ripples through the financial system and detracts from a bank’s capacity to provide liquidity. An alphabet soup of regulation impacts asset managers who are tied to bank balance sheet activities. While all of these regulations seem reasonable and rational in the wake of the financial crisis, what must not be overlooked is the broader market impact that these regulations have on providers of liquidity. This ultimately impacts asset managers who are takers of liquidity, especially those with the largest AUM. Regulation and liquidity are interconnected as can be seen in Display 1. One can observe how this short summary of regulations is amplified across various bank businesses and detracts from their capacity to provide liquidity.

Increased capital charges have caused banks to reduce their inventories, especially for credit instruments and high risk-weighted assets that are less liquid. Instead, inventory on balance sheets has been reallocated to high quality liquid assets (HQLA). This comes at a time when the size of a less liquid credit market has ballooned since the crisis (see Display 2), which represents a measure of reduced liquidity, according to the Federal Reserve.

For example, according to the TRACE reporting system, which captures all corporate bond trades in the U.S., it indicated that turnover has declined markedly as shown in Display 3. The Fed and SIFMA estimate that daily volume for investment grade and high yield credit trading is around $20 billion, which means that daily trading volumes and inventory represents a very low 0.3 percent of the market.

DECLINING LIQUIDITY DYNAMICS ARE NOT RESTRICTED TO CORPORATE BONDS; U.S. Treasuries have not gone unscathed

### Display 1
An alphabet soup of regulation

<table>
<thead>
<tr>
<th>Products Affected:</th>
<th>Products Affected:</th>
<th>Products Affected:</th>
<th>Products Affected:</th>
<th>Products Affected:</th>
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<tbody>
<tr>
<td>CET1</td>
<td>NSFR</td>
<td>SLR</td>
<td>LCR</td>
<td>STRESS TEST</td>
</tr>
<tr>
<td>Electronic/agency trading</td>
<td>Retail deposit funding</td>
<td>Electronic/agency trading</td>
<td>Retail deposit</td>
<td>Historically low loss content loan products</td>
</tr>
<tr>
<td>Wealth management</td>
<td>Rates (Treasury, agency)</td>
<td>Wealth management</td>
<td>Operational corporate deposits</td>
<td>International lending exposure</td>
</tr>
<tr>
<td>Asset management</td>
<td>ST funding</td>
<td>Asset management</td>
<td>Liquidity and credit facilities</td>
<td>Subprime lending</td>
</tr>
<tr>
<td>Advisory</td>
<td>Financial institution deposits</td>
<td>Advisory</td>
<td>Rates</td>
<td>General insurance</td>
</tr>
<tr>
<td>Payments</td>
<td>Non-operational corporate deposits</td>
<td>Payments</td>
<td>Repo</td>
<td>Prime brokerage</td>
</tr>
<tr>
<td>Clearing</td>
<td>Equity derivatives</td>
<td>Clearing</td>
<td>Non-agency MBS</td>
<td>Prime brokerage</td>
</tr>
<tr>
<td>Rates</td>
<td>Prime brokerage</td>
<td>High yield/distressed credits</td>
<td>Municipal markets</td>
<td>Prime brokerage</td>
</tr>
<tr>
<td>Repo</td>
<td>Repo</td>
<td>Equity derivatives</td>
<td>Credit products</td>
<td>Rates</td>
</tr>
<tr>
<td>Agency MBS</td>
<td>Non-agency MBS</td>
<td>IG credit products</td>
<td>Structured products</td>
<td>Repo</td>
</tr>
<tr>
<td>Unfunded lending commitments</td>
<td>Municipal markets</td>
<td>Commodities financing</td>
<td>Unfunded lending commitments</td>
<td>Financial institution deposits</td>
</tr>
<tr>
<td>Equity derivatives</td>
<td>Credit products</td>
<td>Financial institution deposits</td>
<td>Non-operational deposits</td>
<td>Prime brokerage</td>
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<td>Securitized products</td>
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<tr>
<td>Commodities</td>
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<tr>
<td>Mortgage servicing</td>
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<tr>
<td>Non-agency MBS</td>
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<tr>
<td>Higher risk loans</td>
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</tbody>
</table>


### Capital & Solvency Requirements
- **Tier 1 Common Equity (CET1):** A measure of a bank’s ability to absorb losses
- **Supplementary Leverage Ratio (SLR):** Non-risk based measure of capital adequacy that takes into account on- and off-balance sheet exposures
- **Supervisory Stress Testing:** An annual exercise to assess whether the largest bank holding companies have sufficient capital to continue operations through times of economic and financial stress

### Liquidity Requirements
- **Liquidity Coverage Ratio (LCR):** Designed to ensure that banks hold sufficient high quality, liquid assets to withstand an acute stress scenario that lasts 30 days
- **Net Stable Funding Ratio (NSFR):** Aim is to reduce bank reliance on short-term funding by requiring institutions to hold longer-term stable funding against less liquid assets

### Resolution Requirements
- **Total Loss Absorbing Capacity (TLAC):** Requires an institution to put in place sufficient amount of capital to absorb potential losses

While all of these regulations seem reasonable and rational in the wake of the financial crisis, what must not be overlooked is the broader market impact that these regulations have on providers of liquidity. This ultimately impacts asset managers who are takers of liquidity, especially those with the largest AUM. Regulation and liquidity are interconnected as can be seen in Display 1. One can observe how this short summary of regulations is amplified across various bank businesses and detracts from their capacity to provide liquidity.

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* Turnover is a measure of liquidity represented by the volume of bonds traded versus the total amount outstanding.
either. JP Morgan recently published a report on U.S. Treasury market liquidity and concluded that liquidity has been declining. They used measures in their analysis ranging from the depth of the market based on bid/offer spreads to declining participation rates from primary dealers at U.S. Treasury auctions. The key takeaway is that when some of the market’s largest providers of liquidity indicate that liquidity is falling, market participants should listen closely.

Those who believe that using derivatives to gain exposure to physical bonds as a solution to low liquidity issues may find there are challenges to this approach. The rise in the relative cost of short-term funding, rising hedging costs and rising capital charges have disincentivized banks from using this venue to provide liquidity. These costs are passed on to the purchaser of derivatives as well. Bid- offer spreads have widened along with the associated capital charges, while clearing fees from exchanges have risen. Similarly, there has been a reduction in low-margin/high-volume businesses, such as market-making in highly-rated sovereign bonds and repos. Hence, liquidity has been reduced all around.

Furthermore, we note that the unintended consequence of increasing regulations to make banks safer may have increased the risk on non-bank financial institutions, especially those asset managers with exceedingly large AUM. As a result, many investors have been forced to seek non-traditional sources of liquidity such as exchange traded funds’ and mutual funds. This liquidity risk transformation may prove illusory because if market conditions force a fast exit, in our opinion, these funds will surely and adversely impact the bonds that underlay the funds themselves.

This risk is exacerbated by many open-ended funds that offer daily liquidity on what seems to be an underlying asset base that is becoming less liquid. For example, about two-thirds of European mutual funds are UCITS\(^9\), which by regulatory standards must hold 90 percent of assets in liquid securities and offer daily redemptions.\(^10\) The IMF highlighted this risk to financial stability in a consultation with the U.S.

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**DISPLAY 2**

**Liquidity: Falling down**

Declining primary dealer inventories less able to support rise in stock of corporate bonds

![Graph showing declining primary dealer inventories less able to support rise in stock of corporate bonds.](source: Haver Analytics, MSIM. Data as of January 7, 2015.)

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**DISPLAY 3**

**Snapshot of corporate bond turnover**

<table>
<thead>
<tr>
<th>CORPORATE BOND TYPE</th>
<th>2005</th>
<th>2014</th>
</tr>
</thead>
<tbody>
<tr>
<td>High yield</td>
<td>177%</td>
<td>98%</td>
</tr>
<tr>
<td>Investment grade</td>
<td>101%</td>
<td>66%</td>
</tr>
</tbody>
</table>


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\(^9\) An exchange traded fund (ETF) is a marketable security that tracks an index, a commodity, bonds, or a basket of assets like an index fund.

\(^10\) Undertaking for the Collective Investment of Transferable Securities (UCITS) are investment funds regulated at European Union level.

\(^11\) European Securities and Markets Authority (ESMA), "Trends, Risks, Vulnerabilities." No. 1, March 2015.
and warned of a growing amount of liquidity and maturity transformations taking place through mutual funds and ETFs, particularly those investing in credit instruments. The IMF further indicated that this risk is intensified by a decline in broker-dealer involvement in market-making activity, potentially hampering the functioning of markets and price discovery in times of stress.\(^2\)

**How MSIM evaluates risks and finds opportunities in an increasingly challenging climate**

Liquidity and regulatory risk factors have become features of the financial system that cannot be avoided. We believe, however, that you cannot manage what you cannot measure. As a result, we have developed several models to evaluate risks stemming from regulation and liquidity. This is achieved by recognizing that these risk factors show up as risk premia; thus, we have created tools to calculate and capture this in our valuation metrics and in our asset allocation decisions.

In the current investment climate, we believe that traditional fundamental valuations, based largely on econometric data, are an incomplete description of an asset’s value. Since liquidity has become a larger risk factor, we believe an illiquidity premia should be calculated and incorporated into investment decisions. We use this approach across a spectrum of assets, including interest rate products in which we use a term premia calculation. But for purposes of illustration, and since we focused mainly on the liquidity challenges facing corporate bonds in this paper, we will provide an example of our approach for credit assets.

**Decomposing the risks and properly valuing them**

We apply an approach similar to the Bank of England’s structural model for credit risks.\(^1\) It decomposes the spread of a corporate bond into three components of risk compensation for an investor: 1) expected default loss based on observed financial market data; 2) compensation for unexpected loss from default that values the uncertainty attached to the risk of default; and 3) illiquidity premia. Illiquidity premia is a non-credit related factor that compensates an investor for bearing the risk of less liquidity than, say, a high quality government bond such as a U.S. Treasury.

The first component is straight-forward and can be gotten from observable market data. The second component involves a more complex options-based calculation to capture uncertainty of default loss, for which we use the Merton model.\(^4\) The illiquidity premium, like the case for most risk premia, is the residual (Display 4) We show that illiquidity premia has risen to represent a larger component of the overall spread since the start of the financial crisis. This is in direct contrast to the lower levels in the years leading up to the crisis (from 2004 to 2007) when regulation was much looser. Although we seem to be returning to 2000 to 2002 levels, one should not overlook the fact that the stock of corporate bonds has doubled since that period. Additionally, the declining trend in interest rates went a long way in supporting the market since the need for liquidity was smaller during a bull market in bonds. Once the interest rate cycle changes, the need for liquidity will most likely rise.

In terms of calculating the uncertainty or unexpected loss from default, we can use information from the value of a firm’s equity to calculate this probability. Because equity investors are the residual claimants on the firm’s asset value, they receive the same pay-off as a hypothetical investor who holds a “call option” to buy the firm’s assets at a “strike price” equal to the face value of the firm’s debts. The equity value of a corporate borrower can, therefore, be described using option-pricing methods.\(^5\)

For the debt holder, however, it is akin to being “short a put option” since the value of debt is equal to the difference between the firm’s asset value and its equity value. Said differently, a corporate bond holder is short default risk premium which is modeled as the premium from being short a put.

Higher payments to claimants on the firm will lead to slower asset value growth and a greater probability of default, other things being equal. But there is also uncertainty about the asset value growth rate. The greater this uncertainty, the higher the probability that the asset value of the firm will hit the default boundary over any given period. Uncertainty about the asset value growth rate means that the range of possible values for the firm’s assets widens out over time.\(^6\) Display 5 illustrates two possible paths for the firm’s asset value. By referencing the equity return volatility of the corporate issuer and relating the value of the firm’s equity to its asset value, one can derive a probability distribution and thus calculate the uncertainty of an unexpected loss from default. Using option-pricing methods, we can now calculate the component of the corporate bond spread that represents compensation to the holder for an unexpected loss from default.

In Display 4, we illustrate the decomposed valuation of the spread. The risk, or illiquidity premia, is the residual between the observed market spread and the sum of the expected and unexpected loss from default.

Ever since the crisis, our main thesis has been that central bank policies and regulation have been dominant forces influencing asset performance. Since policies such as QE and increased regulation do not tie directly to

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\(^2\) 2014 Article IV Consultation with the United States of America Concluding Statement of the IMF Mission.

\(^1\) This is a model employed by the Bank’s Systemic Risk Assessment Division. Credit risk is the risk of loss of principal or loss of a financial reward stemming from a borrower’s failure to repay a loan or otherwise meet a contractual obligation.


\(^5\) Ibid.

\(^6\) Ibid.
economic growth, their design is to influence asset values by changing the associated risk premia. This is why traditional valuation models based on economic fundamentals have been suboptimal in the post-crisis recovery period, and often times misleading.

Policy makers have endeavored to make the financial system safer by introducing many regulatory changes. Among them is to disincentivize banks from providing cheap leverage and liquidity to investors with a short time horizon who rely on it, the so-called “fast-money” community. This is achieved by creating regulation that increased the cost of engaging in such transactions. The unintended consequence, however, is that market liquidity declined and the illiquidity premia component of an asset’s valuation rose, especially when we control for the increased stock of corporate debt.

We believe many traditional value metrics will now produce incomplete results because they do not properly account for the impact that changes in regulation and liquidity have on an asset’s value. The change in the regulatory climate has added an additional dimension to market risk. In response, we have created analytics, shown in Display 5, to help capture and value this risk in order to properly and more fully assess value so that we can correctly incorporate it into our decision-making process.

Winners and losers
Just as the dinosaurs showed us, in any change in climate, there will be winners and losers. The former are those who have the ability to adapt best and fastest. The latters are those without the ability to adapt fast enough.

Putting this into the context of the fixed income markets, many asset managers were able to transform themselves into giant behemoths by growing their AUM. As long as the old climate of declining interest rates persisted, size was not a determining factor for performance. However, when the regulatory climate changes and it has the added impact of reducing market liquidity, then size does matter. Being too big is a limiting factor to adapting to this change in climate.

The key to succeeding in the future is going to largely be dependent upon one’s ability to interact with prevailing market liquidity conditions and in a flexible manner. Yields may remain low for an extended period before rising. Both cases require asset managers to achieve excess returns by adding alpha through more flexible, or unconstrained global strategies. This affords the opportunity for a manager to add uncorrelated risks to portfolios and add alpha to help enhance returns. The size of AUM in such a strategy is proportional to the scope of the investment opportunity set available to a manager to add uncorrelated risks and create alpha. Being too large, therefore, shrinks that universe and significantly reduces the ability to add alpha.

Flexible management of fixed income assets in unconstrained global strategies may provide a solution in the new climate. The goal of such a strategy is to reduce correlation risks to a portfolio of fixed income strategies while also increasing returns.

Traditionally, many investors who allocate assets into fixed income do so by selecting investment managers to oversee sleeves of specific strategies. Asset allocation decisions are enacted by shifting assets from one strategy and manager to another. This approach was

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**DISPLAY 4**
Illiquidity risk premia has become a larger component of risk in the post-crisis period

<table>
<thead>
<tr>
<th>Jan ’00</th>
<th>Jan ’02</th>
<th>Jan ’04</th>
<th>Jan ’06</th>
<th>Jan ’08</th>
<th>Jan ’10</th>
<th>Jan ’12</th>
<th>Jan ’14</th>
</tr>
</thead>
<tbody>
<tr>
<td>$ investment grade default loss</td>
<td>$ investment grade unexp default loss</td>
<td>$ illiquidity premium</td>
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</tbody>
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17 Correlation is a statistical measure of how two securities move in relation to each other.
sufficient in the past as interest rates consistently declined for years. One needs to recognize, though, that this approach succeeded largely because it was highly correlated to the interest rate cycle.

Currently, rates are low and may not provide required returns for investors and rates may also rise which could have adverse effects to performance. As a result, such an approach that is highly correlated to the interest rate cycle may be insufficient and suboptimal. Unconstrained strategies offer fixed income investors an opportunity to potentially achieve higher returns while reducing correlation risks. But once again, the size of assets under management matters for this type of strategy since the ability to access a wide investment opportunity set in the face of shrinking market liquidity is essential to achieving diversification benefits and introducing uncorrelated risks when constructing a portfolio.

**Conclusion**

In addition to the change in the 30-year trend of declining interest rates, the change in the regulatory climate that ultimately impacts market liquidity is no less significant. The former requires a change in investment tactics to produce returns in a low to rising rate environment. The latter requires a strategic change of whom to select to manage assets when having the ability to adapt and be flexible is essential to succeeding.

Simply understanding the challenges in the current environment is necessary, but insufficient. Being able to employ the tactics of active asset management is paramount to the success of this investment strategy in the new climate. Investment managers, who are less weighed down by large AUM, yet are at the right size with scope to grow, have a global presence with expertise in many markets and can employ strong research teams, will likely have the ability to be more flexible, move faster and better adapt to changes in the investment climate.

The Paleogene Age succeeded the Cretaceous and opened the door to mammals to rapidly diversify and evolve into their own niches. We may be on the edge of a similar moment today for fixed income investment whereby the larger asset managers may be nearing a smaller universe of opportunities, while the smaller and nimbler firms potentially are able to thrive in this new world.
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Managing Director

Jim is a portfolio manager and senior member of the MSIM Global Fixed Income team and a member of the Asset Allocation Committee focusing on macro strategies. He joined Morgan Stanley in 2006 and has 23 years of investment experience. Prior to this role, Jim held the position of global head of interest rates, foreign exchange and emerging markets strategy with Morgan Stanley Research. He authored two interest rate publications, the monthly Global Perspectives and the weekly Interest Rate Strategist. Previously, he was a director at Merrill Lynch where he headed the U.S. interest rate strategy group. Prior to that, Jim held various trading positions. He headed the U.S. options trading desk at Sanwa Bank, was a proprietary trader at Tokai Securities and traded U.S. Treasuries at JP Morgan. Jim received a B.A. in physics from Bowdoin College, a B.S. in aeronautical engineering from the California Institute of Technology and an M.B.A. in finance from New York University, Stern School of Business.

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