By the standard of the apocryphal Chinese curse, insurers find themselves in interesting times indeed. The bond yields on which their general accounts depend have evaporated; when they will reappear is anyone’s guess. The safest investments relatively speaking—government securities—seem to offer the riskiest value, and the only certainty about the unsettled regulatory environment for banks and insurance companies is that it will be more stringent. So insurers today have little choice but to accept more investment risk to secure the long-term survival and prosperity of their strategic business model. To sustain their investment income over these “interesting times” of rock-bottom interest rates and rising uncertainty, they can reach for yield by reducing the credit quality of their portfolios or lengthening portfolio duration and exposure to rate volatility. Or they can reap the benefit of their long-term perspective by offering the excess liquidity in their portfolios to nervous markets willing to pay a hefty premium for it. We believe this last course holds the best risk-adjusted way forward for insurers. But navigating the current environment successfully requires an understanding of the radical changes taking place in fixed income dealing, an exact measure of the liquidity available in their own investment accounts and a strategy for gaining the optimal premium by putting that liquidity to work.
Too much of a good thing?
The periodic complaint that insurers sacrifice investment earnings for excessive liquidity invariably grows more insistent the longer low interest rates persist. The industry’s aggregate balance sheet has grown inexorably as premiums have far exceeded payouts and investment gains have accrued. Property and casualty insurance (P&C) results in 2012, the year of Superstorm Sandy, the second costliest storm ever, provide a case in point. According to the Treasury Department’s estimate in its “Annual Report on the Insurance Industry” for 2013, U.S. P&C insurers paid out $43 billion in claims, the second largest amount on record. Yet that same year they realized $460 billion in net written premiums and the group’s aggregate net income rose by $37.3 billion.

Even the stress tests of the last decade—which included the hurricane year of 2005 (P&C’s largest claims year ever) and the wave of policy surrenders that swept through the life insurance industry along with the financial crisis—left investment accounts intact. Despite the year’s historic catastrophe claims, 2005 marked one of the lowest P&C impairment ratios in the 35-year history of the A.M. Best survey (Exhibit 1A).

Outpacing runs and weathering storms: Insurers’ operating cash flow has absorbed the blows of repeated natural disasters and a massive financial crisis

And although fixed annuity surrender rates had by 2007 nearly tripled off the bottom touched in 2003—and despite a simultaneous decline in net operating cash flow—the Geneva Association, an industry-leading think tank, reported, “[U.S. policy] surrenders were covered in every single year by the yearly generated net operating cash flow, even at its peak [sic] in 2007 (2007 net operating cash flow, roughly USD 75 billion positive). At the market level, no investment sales activities were required to finance surrenders” (Exhibit 1B).

Making the most of illiquidity

A cursory review of A.M. Best’s financial impairment data reveals that the industry’s preoccupation with liquidity is longstanding. Impairment as a result of insufficient liquidity would likely fall into the category of “investment problems” in Best’s source of troubles list. From 1969, through bubbles, busts and benign markets, the category has accounted for a relatively minor proportion, 15%, of life insurer impairments (Exhibit 2A, next page) and less than half that, 7%, for P&C (Exhibit 2B, next page).
We believe insurers are well equipped to pursue that objective, even—or perhaps especially—in turbulent times. They buy in bulk; they have the size to cultivate profitable relationships with large fixed income asset managers. Their buy-and-hold outlook insulates them from the market’s passing panic attacks. To the contrary, stable and reliable cash flows furnish them the means to hunt for bargains in the forced selling that characterizes such attacks.

Dealing in, and coping with, markets undergoing radical change

The financial crisis and its aftermath have enhanced the value of liquidity. When the credit markets shut down in the crisis, the aggressively accommodative countermeasures by which the world’s central banks pried them back open brought a surge of investment grade issuance. The $1 trillion issued in 2013 topped all previous marks.

The central bank liquidity came with regulatory strings attached, however, and they have already affected the global bond markets, arguably even more than the liquidity infusions. Provisions of the Dodd-Frank Act restrict proprietary trading by banks in the U.S.; Basel III should over time triple the amount of capital that banks globally must hold against their loan portfolios. Banks henceforward will have little incentive to hold investment grade bonds for their own accounts.

To the contrary, some argue, the new regulations seem to have created disincentives that limit the banks’ capacity to fill in gaps between supply and demand. Dealer inventory today
Making the most of “interesting times” in the bond markets

Dealer inventories have fallen by three-quarters from their pre-crisis high

EXHIBIT 4: PRIMARY DEALER CORPORATE BOND INVENTORY (2001–AUGUST 2013)

*Amounts for 2013 reflect changed reporting requirements.

The efficiency has its attractions, and the platforms have grown rapidly. The number of participants operating on MarketAxess, the most prominent of the electronic platforms, has nearly tripled, to 87, since the onset of the financial crisis.

Single dealer platforms have not worked out as well, in part because of the perception that they confer an informational advantage on the sponsoring dealer.

has shrunk by 77% from its pre-crisis high, dropping to 2002 levels—in spite of the fact that the amount of corporate debt outstanding has more than doubled since then (Exhibit 4). The effective disappearance of fixed income intermediaries has in turn curtailed fixed income turnover, which has fallen by two-thirds (Exhibit 5).

The high issuance and low turnover, alongside technological advance, have transformed the bond market ecosystem. “On-the-run” issues predominate, almost to the exclusion of off-the-run. Liquidity in the secondary market, a perennial concern, has taken on magnified importance. Once past on-the-run, trade size sinks and turnover plummets—by about half four weeks after issuance—and settles over the course of the first year at an annualized rate roughly equal in volume to the dollar amount of the original issue (Exhibit 6).

The great trading divide

The massively enlarged new issues market itself has split in two as it has grown. Technology has enabled multidealer electronic platforms that seek to address the inventory shortage by replacing narrow-band networks of few participants holding broad inventories with broadband networks of many participants with relatively narrow inventories. Instead of polling potentially interested parties the customary way, via one-by-one phone calls, bond sellers on the electronic platforms can poll multiple prospective buyers simultaneously. The practice brings clarity to the murky process of price discovery and trims the traditionally wide disparities among dealer bid-ask spreads. The efficiency has its attractions, and the platforms have grown rapidly. The number of participants operating on MarketAxess, the most prominent of the electronic platforms, has nearly tripled, to 87, since the onset of the financial crisis.¹

Fade away: Once past the new issue market, bond turnover drops sharply

EXHIBIT 6: FLIPPING NEW ISSUES—ANNUALIZED TURNOVER FOR ALL BONDS BY DAYS SINCE ISSUE*

Source: MarketAxess; data as of May 31, 2013.

¹ Single dealer platforms have not worked out as well, in part because of the perception that they confer an informational advantage on the sponsoring dealer.
Size matters: Big fish in a shrinking pool

Transparency has limited application, however, especially for bulk transactions, when too much clarity can drive down prices and crimp dealer profits. So the conventional networks are alive and well, although reduced since the financial crisis. Fewer dealers, in fact, account for the persistence of trading frictions—elevated bid-ask spreads—despite a booming market and electronic competition (Exhibit 7):

- The bid-ask for highly rated municipal bonds, a notoriously fragmented market, ranged in excess of 15 basis points (bps) as recently as the summer of 2013 (Exhibit 8). In the context of the old normal, before the financial crisis and quantitative easing, a spread that wide would have wiped out nearly a third of municipals’ tax-free yield advantage.⁴
- In the secondary corporate market, lush spreads translate into profits for sellers and losses for buyers so routinely that they have attracted scholarly scrutiny. One recent study⁵ attributed “the return-reversal behavior” to “flipping activity in the early secondary markets” and concluded that it took returns on the typical flipped new issue, weighed down by two markups, a full 18 months to reach positive territory.

The dealers use spreads in part as they always have, passing along a portion in the form of new issue discounts to gain and retain the loyalty of their best customers. Depending on conditions in any given trading session these days, acquiring a new corporate issue from an asset manager with the scale to buy directly from a dealer can translate to a yield pickup of 25 to 30 bps, compared with acquiring the same issue from one of the asset manager’s clients on the secondary market a few hours later. For an insurance company whose investment portfolio consists mostly of bonds, then, the access to deal flow afforded by a solid relationship with a large and established asset manager can serve as a significant source of income.

Putting liquidity to work

Liquidity, the ability to pay cash for bonds in stressed markets, commands a well-documented premium. The liquidity premium is not constant; it rises and falls at the extremes of the interest rate cycle (Exhibit 9, next page). When rates are high and volatility is dropping in orderly credit markets benefiting from a growing economy, the liquidity premium counts for relatively little. At the other end of the cycle, against a backdrop of falling rates, the value of the liquidity premium rises as the market grows more erratic.

⁴ To break even after factoring in taxes, tax-free municipals need to yield only about three-fifths as much as Treasuries at comparable maturities. Currently, long-dated municipals offer about the same yield as Treasuries pre-tax, meaning that they have higher after-tax yields of 40 bps.
Making the most of “interesting times” in the bond markets

Foul-weather friend: Liquidity premium typically peaks as interest rates fall

EXHIBIT 9: JOINT IMPACT OF CHANGES IN U.S. MARKET VOLATILITY INDEX (VIX) AND U.S. TREASURY YIELDS ON CREDIT SPREADS

<table>
<thead>
<tr>
<th>Level of the VIX</th>
<th>Below average</th>
<th>Average</th>
<th>Above average</th>
</tr>
</thead>
<tbody>
<tr>
<td>Above average</td>
<td>Below-average credit spreads (economy recovering)</td>
<td>Mixed credit spreads (top of economic cycle)</td>
<td></td>
</tr>
<tr>
<td>Average</td>
<td>Mixed credit spreads (bottom of economic cycle)</td>
<td>Above-average credit spreads (economy lagging)</td>
<td></td>
</tr>
<tr>
<td>Below average</td>
<td>Below-average credit spreads (economy recovering)</td>
<td>Mixed credit spreads (top of economic cycle)</td>
<td></td>
</tr>
</tbody>
</table>

Source: J.P. Morgan, Kamakura Corporation; for illustrative purposes only.

Exhibit 10 shows how this relationship has worked in practice. In three of the major volatility episodes over the last decade, investors who sold liquidity into the fixed income market—they bought bonds—profited as conditions reverted and credit spreads normalized.

The new abnormal and how to make the most of it

Today’s largely unprecedented fixed income environment upends the established paradigm. The global economy seems to be recovering, so rates figure to rise as markets migrate to the northwest quadrant of our Exhibit 9 diagram. At the same time, volatility—and with it the liquidity premium—also seems to be moving higher. The crisis response of the world’s central banks explains this apparent paradox. The Federal Reserve alone has purchased $4 trillion worth of U.S. debt securities in its effort to stimulate growth. Globally, central banks hold more than $10 trillion of government and government agency debt. Now, with economies starting to generate self-sustaining growth, the central banks are beginning to “taper” their rates of purchase. As recovery takes hold, they may even sell down their holdings into markets with severely constricted capacity to absorb them. The potential supply-demand imbalance enormously compounds fixed income’s usual uncertainties—hence the contrast of shaky markets in an otherwise firming environment.

Unintended consequences waiting to happen: What are the implications for the next credit crunch, with dealer inventory amounting to just 5% of mutual fund holdings?

EXHIBIT 11: U.S. CREDIT MUTUAL FUND ASSETS VS. DEALER INVENTORY


Rewriting history: Providing liquidity (buying bonds) in times of stress has generated gains as credit spreads subsequently tightened. That may happen now in an improving economy as central banks withdraw liquidity

EXHIBIT 10: JOINT IMPACT OF CHANGES IN VIX AND U.S. TREASURY YIELD ON CURRENT SPREADS

Source: Bloomberg, Barclays POINT, Kamakura Corporation; data as of December 31, 2013.
securities—$250 billion worth of investment grade bonds, better than half the total in mutual fund portfolios. By the end of 2013, they held less than $50 billion, compared with nearly $1 trillion sitting in mutual funds (Exhibit 11, previous page).

The disruptive potential of the situation made itself apparent last spring when the mere suggestion of Fed tapering drove losses in many fixed income sectors for the first time in decades. Should the scenario repeat itself—by no means a remote possibility—buy-and-hold investors able to provide liquidity to a panicked market stand to profit handsomely on the rebound by buying creditworthy bonds at distress discounts, as they did coming out of 2008’s crisis.

Identifying fixed income liquidity

The liquidity premium incorporated in the credit spread isn’t as readily apparent as in the bid-ask spread. It makes itself evident in the ebb and flow of bid-ask spreads over the course of a rate cycle. The spread for AA rated credit default swaps between 2004 and 2012 ranged from zero to more than 500 bps. For BBB swaps, it exceeded 1,000 bps (Exhibit 12).

As Exhibit 13 illustrates, liquidity risk and credit risk constitute separate components of the corporate bond spread, each with distinct subcomponents. Only by decomposing the spread into its fundamental factors can investors determine how much to

Spreads and stripes: Credit spreads typically consist of many components. Assessing each one accurately is the key to unlocking fixed income alpha

EXHIBIT 13: DECOMPOSITION OF CORPORATE YIELDS

Source: J.P. Morgan, Oliver Wyman; for illustrative purposes only.

*Capital set aside to cover deviation of actual losses from expected losses.
attribute to changes in liquidity risk and how much to real and perceived changes in default risk.

**Quantifying the non-quantifiable**

Unfortunately, the value of a bond’s liquidity premium doesn’t lend itself to precise measurement. Investors can derive it only indirectly, by calculating the more widely understood and followed factors of the risk premium and deducting them from the total credit spread. The conventional measure of the risk premium, a qualitative evaluation of the state of an issuer’s financial health from a so-called nationally recognized statistical rating organization (NRSRO), is a blunt instrument with which to construct a tightly calibrated portfolio.

Moving down the ratings scale, a persistent anomaly crops up—with a compelling prospect of alpha for investors equipped to assess it accurately (Exhibit 14A). The truism that even AAA rated bonds can default, as Fannie Mae issues did in the financial crisis, has a powerful corollary: A number of below-investment-grade issues have virtually no embedded credit risk. In part to address this anomaly, Kamakura Risk Information Services introduced a series of algorithms into its analytics, known collectively as the reduced form credit methodology, that derive estimates of default probability for each of some 465,000 bonds issued in the United States between 1990 and November 2013. Deconstructing the bond market according to these algorithms pinpoints three important concepts behind optimizing a buy-and-hold portfolio:

- In absolute terms, bonds with a minimal probability of default (0.02% or less) rated between BBB+ and BBB–, the three lowest investment grades, outnumbered bonds in the three highest grades with an equally negligible probability by a ratio of 5/1 (Exhibit 14B).
- The fact that the minimal default probability crosses such a wide range of ratings makes it possible at today’s prices to earn 116 bps in implied liquidity premium.

** Peek under the ratings hood...**

Bonds with widely diverse ratings often have similar default probabilities

**EXHIBIT 14A: DISTRIBUTION BY NRSRO RATING OF REDUCED FORM MODEL DEFAULT PROBABILITY (1990–2013)**

<table>
<thead>
<tr>
<th>Default probability</th>
</tr>
</thead>
<tbody>
<tr>
<td>24</td>
</tr>
<tr>
<td>20</td>
</tr>
<tr>
<td>16</td>
</tr>
<tr>
<td>12</td>
</tr>
<tr>
<td>8</td>
</tr>
<tr>
<td>4</td>
</tr>
<tr>
<td>0</td>
</tr>
</tbody>
</table>

**EXHIBIT 14B: DISTRIBUTION BY NRSRO RATING OF BONDS WITH MINIMAL DEFAULT RATING, ACCORDING TO REDUCED FORM MODEL (1990–2013)**

<table>
<thead>
<tr>
<th>NRSRO rating</th>
</tr>
</thead>
<tbody>
<tr>
<td>AAA</td>
</tr>
<tr>
<td>AA+</td>
</tr>
<tr>
<td>AA-</td>
</tr>
<tr>
<td>A+</td>
</tr>
<tr>
<td>A-</td>
</tr>
<tr>
<td>BBB+</td>
</tr>
<tr>
<td>BBB</td>
</tr>
<tr>
<td>BB+</td>
</tr>
<tr>
<td>BB</td>
</tr>
<tr>
<td>BB-</td>
</tr>
<tr>
<td>B+</td>
</tr>
<tr>
<td>B</td>
</tr>
<tr>
<td>B-</td>
</tr>
</tbody>
</table>

Source: GFI and Kamakura Corporation; data as of December 6, 2013.
• The opportunities for yield pickup become even more pronounced moving further out along the spectrum of default probabilities. At a 1% probability, according to our calculation, the pool of bonds in the lowest three investment grade ratings is nearly eight-and-a-half times larger than that in the highest three ratings.

Clearly, then, a reliable methodology for assessing credit risk not only can make for more insightful portfolio construction than the use of ratings alone, but it can take advantage of the ratings’ imprecision to maximize yield (via liquidity premium) per unit of credit risk.6

From qualitative ratings to quantitative rankings

Truly objective ratings depend as much on uniformity of application as on logic of concept. The NRSROs’ methodological shortcomings arise from the inconsistency and infrequency of qualitative assessment. Given human subjectivity and unavoidable bias, absolutely uniform credit analysis would seem close to impossible. The suddenness and speed at which markets move pose an equal if not greater challenge to hand crafted ratings—a fact indelibly underscored by the sudden collapse of highly rated collateralized mortgage obligations in the financial crisis.

Structural form credit models developed in response to ratings’ shortcomings have the virtue of uniform application—they evaluate issuer risk with objective, statistically derived criteria. Yet, while the statistically derived models represent an improvement, they do not avoid the defects of theory distanced from marketplace realities. The structural form model analyzes a given period as a whole with a single set of outputs. It presumes an unvarying macro-environment during the period. And it treats the volatility of all of an issuer’s assets—cash, receivables, plant, equipment or anything else that might conceivably serve as collateral backing its bonds—as identical to the volatility of its equity.

The big data refinement

The reduced form method, elaborated by Kamakura and employed in this study by J.P. Morgan’s Insurance Strategy and Analytics team, acknowledges the strength of the statistically valid approach but goes further in reconciling theory to actuality. Kamakura’s algorithms calculate default probabilities at the security level rather than for the issuer alone. They weigh a security’s relative seniority in the issuer’s capital stack and the strength of the collateral and covenants behind it. The algorithms also factor in macroeconomic variables like inflation, unemployment, interest rates and GDP growth. They take real-time market conditions into account, gauging the depth and quality of current trading activity to derive a day-to-day as well as a security-by-security read on the default risk implicit in a given credit spread.

Liquidity premium illustrated: A snapshot of a highly rated corporate charts a minimal default probability and, by implication, a sizable and rising liquidity premium as maturity extends out

EXHIBIT 15: TREASURY YIELDS, TREASURY YIELD, PLUS DEFAULT PROBABILITY, AND ISSUER YIELDS TO MATURITY (BP ISSUES, AUGUST 6, 2013)

<table>
<thead>
<tr>
<th>Years to maturity</th>
<th>Treasury yield</th>
<th>Treasury yield + default probability</th>
<th>High yield</th>
<th>Low yield</th>
<th>Average yield</th>
</tr>
</thead>
<tbody>
<tr>
<td>0.26</td>
<td>0.50</td>
<td>0.80</td>
<td>0.30</td>
<td>0.10</td>
<td>0.40</td>
</tr>
<tr>
<td>0.76</td>
<td>2.50</td>
<td>3.10</td>
<td>2.00</td>
<td>1.00</td>
<td>2.50</td>
</tr>
<tr>
<td>1.34</td>
<td>3.50</td>
<td>4.20</td>
<td>3.00</td>
<td>2.00</td>
<td>3.50</td>
</tr>
<tr>
<td>1.86</td>
<td>4.50</td>
<td>5.40</td>
<td>4.00</td>
<td>3.00</td>
<td>4.50</td>
</tr>
<tr>
<td>2.38</td>
<td>5.50</td>
<td>6.50</td>
<td>5.00</td>
<td>4.00</td>
<td>5.50</td>
</tr>
<tr>
<td>2.90</td>
<td>6.50</td>
<td>7.70</td>
<td>6.00</td>
<td>5.00</td>
<td>6.50</td>
</tr>
</tbody>
</table>

Source: Kamakura Corporation, MarketAxess, TRACE; data as of August 6, 2013.

6 Shortcomings notwithstanding, NRSRO ratings also serve as the measure of capital charges against insurance company investment portfolios. The foregoing discussion does not take the charges into explicit account. Insurance investors, using the discussion as a base, obviously would have to account for them in constructing optimal risk-adjusted portfolios.
As an example of the reduced form’s practical application generated by J.P. Morgan’s Insurance Strategy and Analytics, Exhibit 15 (previous page) graphs the output for an analysis of a real issue on an exact date. The blue bottom line traces Treasury yields across the maturity spectrum. The orange second line, barely above the first in the example, estimates the default risk. The issue’s actual yield, represented by the three top lines, which reflect the full bid-ask range of the day in question, rises well above the default line and goes higher as maturity lengthens.

The advance in methodology achieved by such an approach is vital, we believe, to making the most of the very real opportunities available in unsettled fixed income markets. At a time when liquidity matters and the willingness to hold illiquidity commands a sizable premium, we feel a rigorous assessment of liquidity premiums and default probabilities is essential for insurers to balance their own near term liquidity needs against the imperative of adequate long-term investment returns.

Conclusion: Size counts and illiquidity pays

The fixed income turmoil that in large part caused the financial crisis and that reverberates today has by any measure strained insurance company investment portfolios. Even so, we believe that insurers can benefit from the changes taking place. They have portfolios large enough to matter to the asset managers that regularly reap new issue discounts. And their strategic buy-and-hold approach affords them the long-term perspective to look past the ups and downs of a protracted global recovery. Better yet, steady premium flows and their long and locked-in liability structure give insurers the capacity and capability to profit as the central banks withdraw their extraordinary support, rates normalize and markets stabilize. Combined with an analytical tool kit proven to reliably dissect the constituent risks implicit in credit spreads, it positions them, perhaps uniquely, to put their liquidity to work acquiring solid bonds at bargain prices in outbreaks of market volatility.
Making the most of “interesting times” in the bond markets

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