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ESG Considerations for Securitized Fixed Income Notes

Executive Summary

Securitized assets make up over a quarter of the U.S. fixed income markets,[1] yet assessments of environmental, social, and governance (ESG) risks related to this sizable segment of the bond market are notably lacking.

The purpose of this study is to bring securitized notes squarely into the realm of responsible investing through the development of a specialized ESG evaluation framework for securitizations. To date, securitization has been notably absent from responsible investing discussions, probably owing to the variety of securitization types, their structural complexities and limited knowledge of the sector. Managers seem to either exclude securitizations from ESG assessment or lump them into their corporate exposures. A common presumption, given the lack of method, is that securitizations are at best neutral, and possibly a detractor from an ESG risk viewpoint.

We question that presumption. Analyzing the periods surrounding the more severe ESG incidents[2] at U.S. corporations since 2010, we find median price declines for equity of those companies of -16%, and -3% median declines for their corporate bonds.[3] Yet, the median price decline for securitized notes during these periods is 0% – securitized notes are as likely to climb in price as they are to fall in price, through these incidents. This should not be surprising – securitizations are designed to insulate investors from corporate distress. They have a senior security interest in collateral, ring-fenced legal structures and further structural protections – all of which limit their linkage to the originating company. However, we find that a few securitization asset types, including whole business securitizations and RMBS, can still bear substantial ESG risk. A specialized framework for securitizations is needed.

We have developed an ESG evaluation framework, customized to these features of securitizations, in order to properly analyze their environmental, social, and governance exposure. The framework has three pillars:

Pillars of the BBH ESG Evaluation Framework for Securitizations

PILLAR 1

Identify and assess the nature and strength of all corporate linkages

Identify and assess linkages to a securitization (whether originator, servicer, or guarantor). For each corporate entity with a significant linkage to the trust, a separate corporate ESG evaluation should be performed.

PILLAR 2

Analyze the underlying loan or lease pool of the securitization from an ESG perspective

Any sizable concentration in the pool to a single loan borrower with elevated ESG exposure may add further risk to a security. Such loan-related exposure may be mitigated, however, by a large issuer equity position beneath the securitized note or by structural protections in the transaction that accelerate repayment to noteholders if performance weakens.

PILLAR 3

Analyze the governance integrity of the securitization trust

Analyze the securitization trust (including the strength of its standalone legal structure, the clarity of cashflow rules, the identity and role of the independent trustee) from an ESG perspective.

Once the risk exposure from each of these three pillars has been assessed, they can be aggregated into a single ESG risk measure for the entire trust.

We provide an example of the application of this framework to a small-ticket asset-backed securitization (ABS) transaction. Using this framework, we then provide an overview of ESG factors and categorize their intensity across more than 30 sectors/subsectors of the securitization market. We find that the environmental, social, and particularly governance risk exposures for securitizations are generally low relative to the range among unsecured corporate bonds. There are a number of meaningful exceptions to this, however, strongly underscoring the need to apply a specialized ESG framework to securitized fixed income.[4]

[1] SIFMA, Outstanding Bond Market Debt 12/31/18.

[2] Severe ESG events are tracked, analyzed and classified by ESG ratings and research provider Sustainalytics.

[3] The better performance of corporate bonds versus equities during ESG incidents illustrates the mitigating effect of their more senior position.

[4] Like securitizations, certain secured corporate bonds and loans also rely on dedicated security packages and structural protections to insulate from corporate ESG event risk.

Introduction

Securitized notes and bonds are issued by standalone legal entities whose sole purpose is to purchase loan and lease collateral pools, issue debt, and distribute interest and principal cashflows to debtholders. They have limited (and in many cases no) linkage to operating companies.

The securitization market is diverse, spanning credit, agency-backed, and government-guaranteed collateral types. These include agency mortgage-backed securities (MBS), commercial mortgage-backed securities (CMBS), asset-backed securities (ABS), and collateralized loan obligations (CLOs). There are important commonalities. Securitized bonds typically have an independent legal structure. They benefit from the security of an underlying pool of loan and lease assets. There are stringent, transparent rules for the distribution of collateral cashflows to noteholders, which are administered by an independent trustee. Finally, there are important structural protections for noteholders that can include equity and subordination beneath notes, sequential payment rules, and performance-related triggers to protect noteholders in the event of collateral deterioration.

Securitizations and Corporate Linkage

For corporate equities and bonds issued by large public companies, ESG assessment is supported by large existing databases of company benchmarks and an evolving body of ESG evaluation criteria. There is little practical guidance, however, on how to evaluate MBS, CMBS, ABS, and CLOs from an ESG perspective.[5] One simple approach equates the environmental, social and governance risk in a securitization with the corporate ESG rating of the originating or servicing company. This approach erroneously treats a securitized note solely as a corporate obligation. It ignores all the distinctive features of a securitization – its independent legal status, bankruptcy remoteness, reliance on dedicated collateral, and structural mitigants. In our experience, it is important to recognize corporate linkages as part of any ESG assessment. But such linkages should only be part of a broader ESG analysis that considers their relevance, the securitization's legal separateness and governance integrity, and the quality and diversity of the underlying collateral pool.

An analyst of an auto loan ABS, for example, might consider the corporate health of the auto lender as just one factor, and perhaps even a minor one, in the assessment of a credit. An ESG assessment of this ABS should strive to place the risks from governance failures at the auto lender in proper context with, say, any adverse social impacts from the auto loans themselves, as well as the integrity of the note trust – its independence, stability, governance structure, and administration by a trustee. In addition, structural protections (like excess interest, subordination, and cashflow redirection in event of distress) can help ABS noteholders mitigate this combination of risks from corporate ties, the loan pool itself and the trust structure itself. These mitigants can help a securitization weather a severe ESG event that would devastate the originating company.

Appropriate ESG Framework

Developing an appropriate ESG framework for securitizations is no academic exercise. We demonstrate that the returns for securitized notes during a severe ESG event are quite different than for equity or corporate bonds. Simply tagging a securitization with the corporate ESG rating of its originator is not only misguided but rejected by empirical evidence.

[5] See, for example, CFA Institute, "Guidance and Case Studies for ESG Integration: Equities and Fixed Income." Chapter "Fixed Income Case Studies: Structured Credit," by Singer, McDonogh, Guo, and Reback of Angel Oak Capital Advisors. Their paper recognizes the practical difficulty of attaching a corporate ESG rating to each securitization trust without performing deeper due diligence into the securitization's attributes.

Owning structured fixed income notes insulates investors from ESG event risk

Independent structures, dedicated collateral, and structural mitigants tend to insulate securitized notes from the fallout of severe corporate ESG events at their originator or servicer. This is very clear when one compares the daily returns of a company's securitized notes, through the course of a severe ESG incident, to their corporate bond and equity returns.

We examined the daily price returns of the equity, corporate bonds, and securitized bonds of the companies that experienced the most severe ESG incidents from 2010 to the present (the available length of the Controversies historical data set). These incidents are assessed and classified by ESG ratings and research provider Sustainalytics.

The methodology of the analysis is described in the Appendix. Daily return data was analyzed for companies that meet all of the following criteria:

- Experienced an ESG incident of severity 5 or higher on Sustainalytics' severity scale.
- Had U.S. dollar public equity, corporate bonds, and securitizations outstanding at the time of the incident.
- Had reliable daily price data available for all security types.

Exhibit 1 below describes the resulting data sample of nine companies and their associated ESG incidents that met all of these criteria.

EXHIBIT 1: Recent ESG Incidents

Company	Incident Date	Ultimate Incident Severity	Incident Description
JP Morgan	2012	8	Discloses trading loss of $6.2 billion stemming from a hedging strategy.
American Express	2014	6	US DOJ finds violations of the Sherman Antitrust Act for more than a decade.
Credit Suisse	2014	6	EU investigation into Swiss franc rate-fixing.
General Motors Co	2014	10	Recalls millions of vehicles for power steering failures.
Hertz Global Holdings	2014	5	Class action lawsuits accusing Hertz of misleading shareholders on company's performance.
Nationstar	2014	5	New York regulator focuses on rapid growth of non-bank servicers
Sallie Mae	2014	7	Regulatory investigations of loan servicing practices.
Ford Motor Co	2016	7	Recalls millions of vehicles for air bag inflator failures.
Wells Fargo	2016	10	Regulators find customers pushed into fee-generating accounts they never requested.

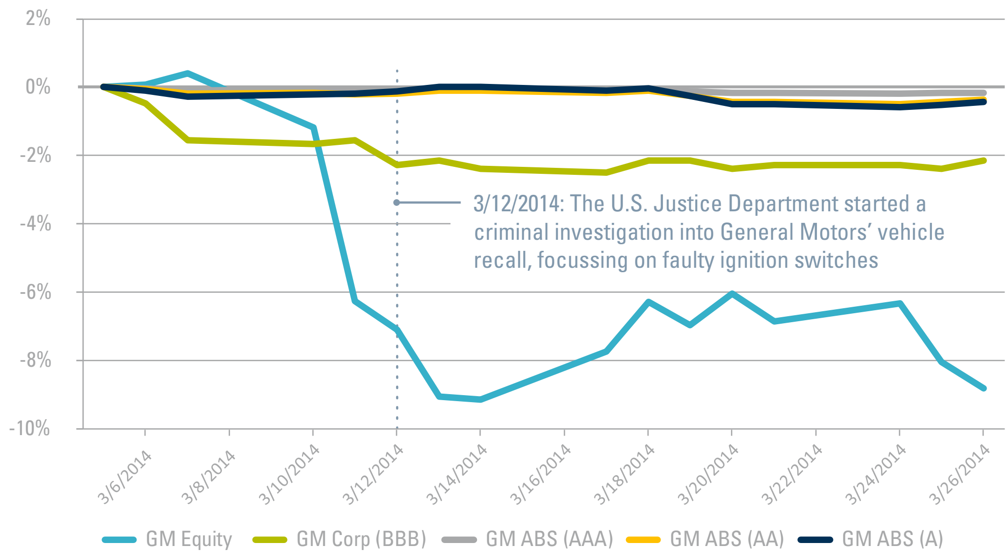
Sources: Sustainalytics and BBH Analysis

Exhibit 2 on the next page shows how the incident analysis was conducted for each company, using General Motors as an example. In early 2014, the U.S. Justice Department began a criminal investigation into evidence that GM had ignored faulty ignition switches for a decade, resulting in several deaths.

As **Exhibit 2** demonstrates, General Motors (GM) equity (blue line) fell dramatically as the investigation was nearing, with equity prices dropping a cumulative 9% and corporate bonds selling off 2%. By contrast, the prices of GM's securitized debt, both AAA-rated senior and lower-rated junior tranches, showed little impact. While nominally sponsored and serviced by GM, auto loan ABS notes are viewed differently by investors than the debt of the GM corporation. The ABS notes are independently collateralized by auto loans under a separate trust structure. The headline litigation concerns that moved GM equity and corporate debt prices had little impact on ABS. This is a typical pattern we find in our analysis – securitizations can insulate investors from major regulatory, governance, social, or environmental crises that their originating company may experience (Appendix 2 shows similar incident analysis for the other companies in the data sample).

That securitizations can insulate investors from severe ESG risk at the corporate level is illustrated in the aggregate results of the incident analysis. For each of the 44 securities analyzed across the 9 companies that experienced a high severity ESG incident as determined by Sustainalytics, we calculate its maximum price drawdown over the analysis period, i.e. the period of peak price impact from the incident.

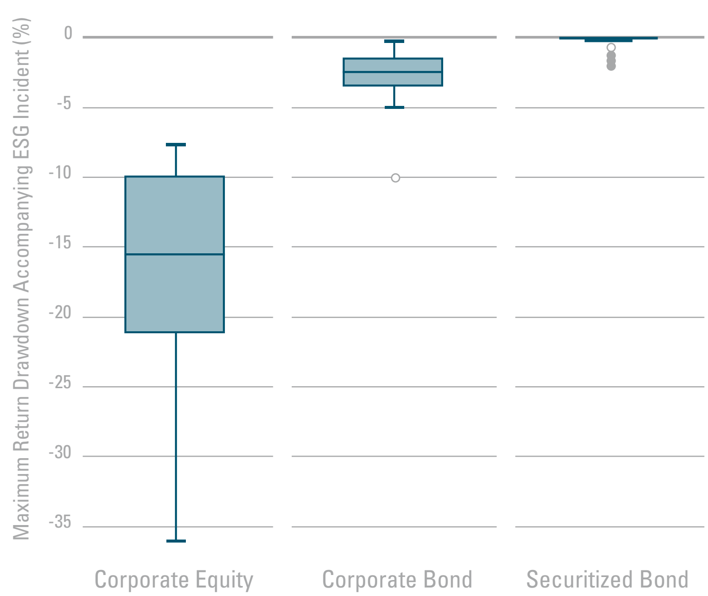
EXHIBIT 2: Cumulative Price Return Accompanying ESG Incident – General Motors



Sources: Bloomberg and BBH Analysis

Exhibit 3 to the right shows the distribution of maximum price drawdowns across the 44 securities by security type in a simple box-whisker plot. The first quartile, median, and third quartile drawdown percentages are clearly tiered across security types, with large equity impacts, substantial corporate bond impacts, and negligible impact to securitizations. The median price drawdown for equities is -15.8%, for corporate bonds it is -2.6%, and for securitizations it is 0%. The limited ESG event impact on securitizations is also apparent in the narrow range of drawdowns, as the 75th percentile worst securitization drawdown is well below the 25th worst percentile corporate drawdown. Finally, of the securitizations in the analysis, 14 out of 24, or more than half, showed no drawdown, i.e. prices were stable or increased over the incident period.

EXHIBIT 3: Securitizations Show Least Return Drawdowns in Severe ESG Incidents



Sources: Sustainalytics and BBH Analysis

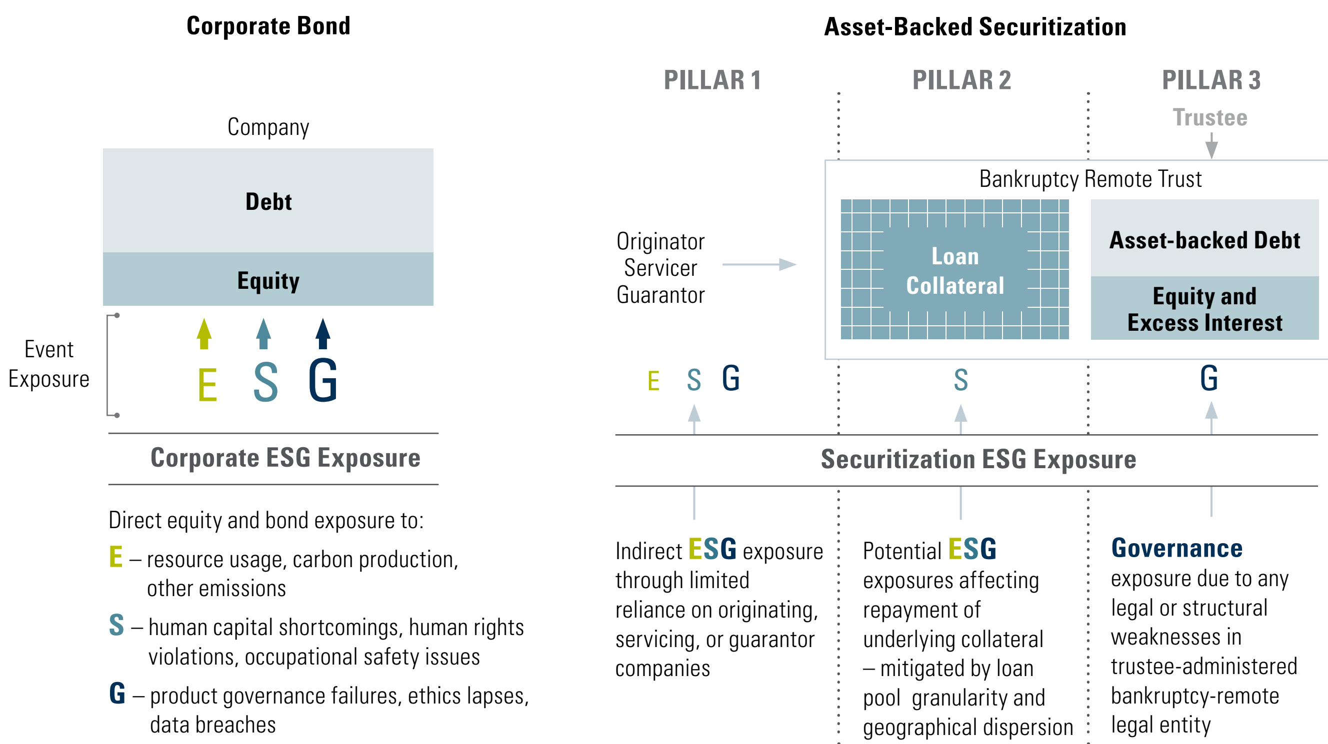
The results of this analysis show that the independent structure and dedicated collateral pools of securitizations can insulate investors from severe ESG incidents at the originating company. This is not to say that securitizations don't move in price or aren't sometimes closely linked to their corporate originator, but the observed tendency is that securitizations avoid price reactions stemming from corporate ESG failures. At the least, securitized notes should not be painted with the same broad ESG brush as corporate bonds and equities. Optimally, securitized notes should be evaluated through a specialized framework, which recognizes the strength of corporate linkages, their independent governance structure, and the quality of their collateral pool. We present such a framework in the following section.

A framework for ESG assessment of securitized notes

Based on many decades of experience in assessing securitized notes and our long-standing presence in these markets, BBH developed an ESG assessment framework that measures and weights the relevant ESG exposures to securitization noteholders. Corporate linkages in the securitization are identified and assessed, but they are evaluated alongside equally important factors that raise or mitigate exposures – legal separation, strength of collateral security, independent administration, and structural enhancements.

Exhibit 4 contrasts ESG assessment for a corporate security versus a securitized bond. On the left side, ESG risk factors enter in a conventional way in the corporate evaluation. Direct assessment may be conducted of the environmental exposures associated with a company's production, operations, and distribution. Social exposures can be identified both within the company (e.g. human capital gaps, occupational safety issues, human rights violations in the supply chain) and outside the company (e.g. health impacts from product usage, negative externalities, political distortions). Exposure to governance shortcomings can be identified and assessed, including the volatility and scope of business operations, the breadth of experience and diversity within management, the integrity of management and its commitment to sound underwriting, the sufficiency of internal policies, and the degree of transparency, both internal and external to the company.

EXHIBIT 4: BBH ESG Risk Assessment – Corporate Bonds vs. ABS



The size of E, S, and G symbols represents relative ESG risk exposure from that category. For illustrative purposes only

Alongside the identification of such ESG risk exposures, the degree to which a company successfully manages or mitigates these exposures through good management, policies, and communications is also assessed. Assessing ESG exposures and their management requires access to high quality data for the company: management communications, company policies, impact assessments, financials, media coverage, etc. This ESG-related data varies in thoroughness and quality from company to company. It may be obtained directly through the company, through third-party ESG assessment firms, or gathered directly by the analyst.

By contrast, an ESG assessment for a securitized bond must cover more ground. For securitizations, the broader assessment can be grouped into three categories:

1 Indirect corporate ESG exposures related to the originator, servicer, and/or guarantor of the collateral pool.

The securitization trust is an independent legal entity that owns the loan or lease collateral, the cashflows of which are appropriately allocated to trust noteholders by an independent trustee. A trust is structured so that its collateral assets may not be attached in any restructuring of the operating companies that may have originated or service the collateral. This independence substantially limits the impact on the securitization of a major ESG event at these operating companies relative to the impact on their corporate debt. Securitization investors can typically expect to avoid impairment to their notes even following extreme events at the operating companies of the originator or servicer that result in their bankruptcy and in corporate bond losses. This is illustrated in the prior **Exhibit 4**. The ESG risk exposure indicators beneath the Originator/Servicer/Guarantor exposure channel of a securitization are much smaller than the corresponding direct corporate exposure indicators on the left for a corporate bond. ESG exposure from any corporate linkages is typically reduced by the securitization structure.

Nevertheless, distress at the originator, servicer or guarantor of collateral loans can present some risk to a securitization, so an ESG assessment should seek to identify any meaningful corporate linkages. Such linkages could include the capability of the company to make collections on securitization loans or to originate new loans into a revolving securitization trust. Unlike ESG assessment of a corporate bond, there may be linkages to more than one company in a single securitization. One company may originate the loans, while another company services them. A portion of the loan pool could be guaranteed by a third company. (See **Exhibit 5** on the next page.) While the strength of these corporate ESG linkages are typically weaker for a securitization, an analyst should still develop a corporate ESG analysis on any operating companies to which the trust may have meaningful exposure.

This step involves the same data and analysis required to evaluate each company's corporate debt.

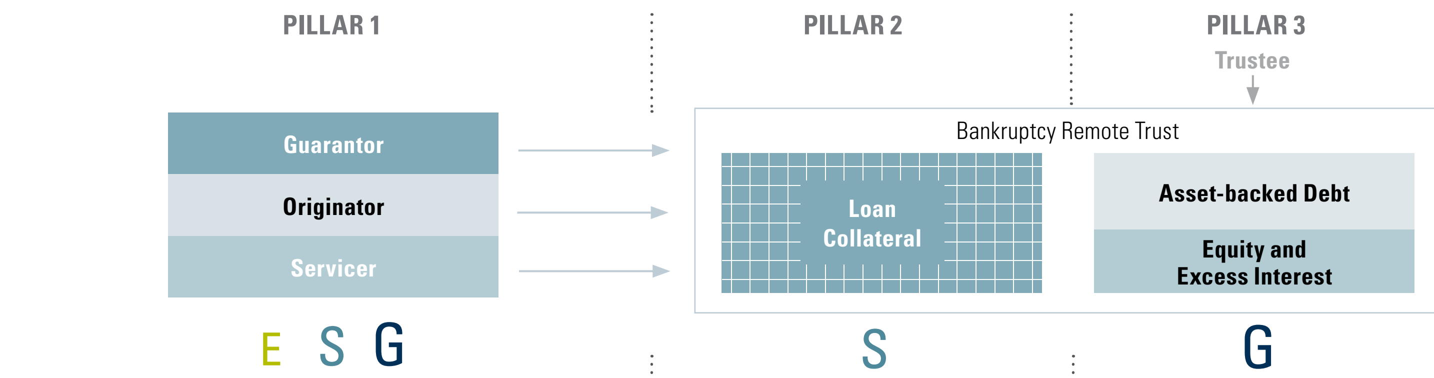
Once the set of companies with meaningful linkages to the trust is identified and a separate ESG assessment of each company is developed, the strength of linkages of each company to the securitization is determined. Ongoing relationships between the company and the trust and the impact of certain structural features must be understood.

Considerations on the strength of linkages include:

- *What are the trust's servicing needs?* Certain loans and leases have low default rates and are quite simple for many industry participants to service. Others may have high touch servicing or collections requirements or need to be re-leased over the life of a debt transaction (aircraft, for example). A greater servicing involvement over time in the performance of the loans means a stronger linkage to the servicing company.
- *Is the collateral pool closed, i.e. static over the life of the security?* If not, and the originator is expected to contribute new loans over the deal's life, then the linkage of the trust to the originating company is likely to be more meaningful.
- *What is the strength of the trust's security interest in the trust collateral?* For most securitized asset types, the trust's security interest in the collateral is well-tested and understood, including mortgages, title or Uniform Commercial Code (UCC) filings. For certain asset types (e.g. whole business securitizations), the security interest can be more complex because the linkage to the health of the issuing company is high. Legal jurisdiction outside the U.S. can also detract from the security interest.
- *Is there implicit support from an originator or servicer?* Securitization investors are not accustomed to relying on sponsors to make good on any losses experienced in the trust, but certain asset types nonetheless enjoy ongoing support from sponsors (e.g. timeshare ABS). Here, the implied linkage to the sponsoring company is stronger.

Evaluating the strength of such linkages between the trust and operating companies requires a different type of analysis and data than a conventional corporate ESG assessment. Trust pooling and servicing agreements, the nature and scope of servicing operations and ongoing portfolio management responsibilities, true sale and security documentation, and potential portfolio substitution activity should all be understood and reviewed. Substantial information must be gathered on the trust beyond what is typically involved for a company assessment. This information is typically made available to securitization investors at issue and through regular transaction reporting.

EXHIBIT 5: ESG Risk of Originator and Servicer



	PILLAR 1	PILLAR 2	PILLAR 3
Exposure	Indirect exposure to ESG weakness at companies that service, originate, or guarantee loan collateral Often just a single servicing company for a trust, but sometimes one company plays all three roles	Indirect ESG exposure at the individual companies or consumers that are borrowers for the loan collateral	Exposure to any governance issues in the trust
Management & Mitigants	• Closed, static pool of seasoned loans • Minimal servicing need • Bankruptcy remoteness and true sale treatment • Servicing contracts delineate duties of company, including conditions for replacement • Reps and warranties on loan collateral • Backup servicer	• Loan pool is highly granular across hundreds or thousands of loan obligors • Geographical and industry diversity • Obligor concentration limits • Equity, subordination, and excess interest insulate debt from loan losses • Transparency and carveouts for environmental exposures in loans • Bond structural protections accelerate repayment under duress	• Simple rules-based governance structure documented in bond indenture and service contracts • Administration by independent trustee • Sequential cashflow rules protect debt, both pre- and post- default

The size of the E, S, and G symbols represents relative ESG risk exposure from that category. For illustrative purposes only

2 Indirect ESG exposure through individual company or consumer borrowers in the collateral pool

Apart from originator and servicing linkages, securitizations may also be exposed to ESG risk through their underlying loan or lease collateral pool. This exposure could be either through a large concentration to a single corporate obligor in the loan or lease collateral pool or from a social or environmental exposure introduced to a large set of borrowers through particular loan or lease features.

As an example of the first, if a collateral loan to a single company is large enough, say 15% of the overall collateral pool, a severe ESG event at that borrowing company (like a product recall or a work stoppage) could affect the performance of the securitization. A higher obligor concentration means a greater degree of linkage to the ESG risk of the borrowing company. Most securitizations are highly granular and have no particular obligor or geographical concentrations. However, there are several securitization types where borrower concentrations are high. One example is whole business securitizations where an ABS is secured by asset-level cashflows associated with a single company. In this case, corporate exposure is not meaningfully different than for the unsecured debt of the company.

As an example of the second, loans in the collateral pool may collectively impose specific social or environmental costs on a group of borrowers. A securitization of pay-day loans with punitive interest rates or a portfolio of royalties on oil wells are two examples. Similarly, the carbon emissions associated with a large fleet of trucks add to the aggregate environmental exposure of a fleet lease ABS. Conversely, a securitization of reasonable rate loans to lower-income borrowers or a portfolio of energy efficiency loans brings social and environmental benefits. Generally though, securitizations are secured by decades-tested essential consumer and commercial lending products and so typically impose no particular ESG burdens on borrowers.

Assessment of such indirect ESG exposures embodied in the loan collateral pool itself is performed separately. It is influenced and mitigated by several trust-specific factors:

- *Is the loan pool granular across hundreds of loans?* If not, and there are larger concentrations, linkage of the trust to the obligor is likely to be more meaningful.
- *Are there obligor concentration limits to prevent large obligor concentrations from emerging in the portfolio?*
- *Is there industry and geographical diversity within the collateral pool?*
- *Even where linkage to a single obligor may be meaningful, structural protections including equity, subordination and excess interest can insulate investors from corporate ESG exposure of a single obligor.*
- *Environmental issues in underlying loans and collateral are often identified by consultants and environmental exposure is structurally carved out.*
- *Bond structural protections can accelerate repayment under duress, limiting ESG exposure.*

Certain data sources must be consulted to determine ESG exposure through the collateral pool and the degree to which it is mitigated by loan attributes and bond structural features. The analyst should obtain loan-level data and pool-level stratifications, portfolio concentration rules, the equity and subordination profile, rules for cashflow waterfall under various performance scenarios, and environmental impact assessments and carveouts.

3 Exposure to governance issues in the securitization trust

Corporate governance structures, particularly at large companies, can be multi-layered and complex. Ultimately they are only as good as their implementation and adherence by management and employees. Serious lapses can result in deleterious outcomes.

By contrast, the governance structures of securitizations are much simpler. They are transparent, and typically administered by an experienced trustee agent. The purpose and activities of a securitization are far more limited than an operating company. They issue bonds, purchase collateral, and then administer interest and principal payments to noteholders under specified priority rules until noteholders are repaid and the trust is dissolved. Hence, governance problems in securitizations are unusual. As **Exhibit 5** in this section shows, a securitization's direct exposure to governance risk (shown on the right) is typically much smaller than the governance risk in a large corporation (on the left).

This said, securitization structures are subject to governance weaknesses that may be more likely to emerge when underlying loan performance is poor. Also, ambiguity in deal documents, poorly designed cashflow waterfalls or amortization structures, insufficient oversight of servicing, and poor reporting can all create governance risks for securitization investors.

To assess such risks, it is useful to consider:

- *Is a simple rules-based governance structure properly documented in bond indenture and service contracts?*
- *Is there appropriate oversight and administration by an independent trustee and auditor?*
- *Do sequential cashflow rules adequately protect lenders, both under normal conditions and during periods of stressed performance?*
- *Does the trustee provide accurate, timely, and detailed reporting of collateral performance, debt repayment, and structural functioning?*

Evaluating the governance risk within a securitization also involves review of additional data, including bond prospectuses and indentures, trustee statements and references, documentation of cashflow priorities and empirical performance for other securitizations in the shelf or industry, and examination of regular pool, debt, tax, and financial reporting.

An ABS example in the BBH ESG securitization framework

The following chart is an example of ESG analysis for a securitization. Amur Equipment Finance Receivables, Series 2019-1, is a securitization of 2,755 equipment leases originated and serviced by Amur Equipment Finance (Amur EF).

Some facts:

- Amur EF is a commercial equipment lessor founded in 1996 and headquartered in Grand Isle, Nebraska.
- Amur EF finances 90 categories of equipment (e.g. trucks, trailers, food service equipment, construction vehicles, and medical equipment) for small and medium-sized companies across the country through a network of over 2,000 equipment vendors.
- Series 2019-1, issued in July 2019, is Amur EF's seventh lease securitization.
- The lease contracts, valued at $280 million, were sold by Amur EF to a Delaware trust established for Series 2019-1, which is administered by trustee Wells Fargo.
- The Series 2019-1 trust issued ABS notes in July 2019 totaling $255 million that are secured by the lease contracts.

An ESG analysis of the Series 2019-1 notes begins with an assessment of any corporate linkages to the trust. Amur EF is both the originator and servicer of the lease. There is no guarantor of the leases, and no other meaningful corporate exposure for the trust. A corporate ESG analysis is therefore performed just on Amur EF, looking at the company just as we would an assessment of its debt or equity.

Performing the analysis (see the far left of **Exhibit 6**), we determined that the environmental exposure at the company is very low. Amur EF is a financial services company that leases equipment across a diverse range of the U.S., with some concentration in trucking.

Social exposures of the company are moderate. For example, Amur's lease contracts are an essential source of financing for its lessees at competitive rates. There are no supply-chain issues, but as is common at privately-held companies, there is limited information on human resources policy for the company's 135 employees, who are spread over five offices. Our analysts must engage senior management directly to gather such information.

We assess governance risk exposure of the company to be medium. The company is co-owned by its Chairman and CEO Mostafiz Shah Mohammed and a Blackstone private equity fund. The company completed a separation with its former CEO five years ago and the current management team has been in place for several years. Board composition is composed primarily of management and Blackstone, with limited independent directors. Operational execution has been strong, but we don't have the transparency in operations and policies that we would for a public company. We have over a decade of underwriting statistics and performance data that indicates that Amur has maintained consistency in its lease underwriting.

These respective environmental, social, and governance ESG risk levels for the company Amur EF are denoted by the relative size of the E, S, and G symbols on the far left of **Exhibit 6**.

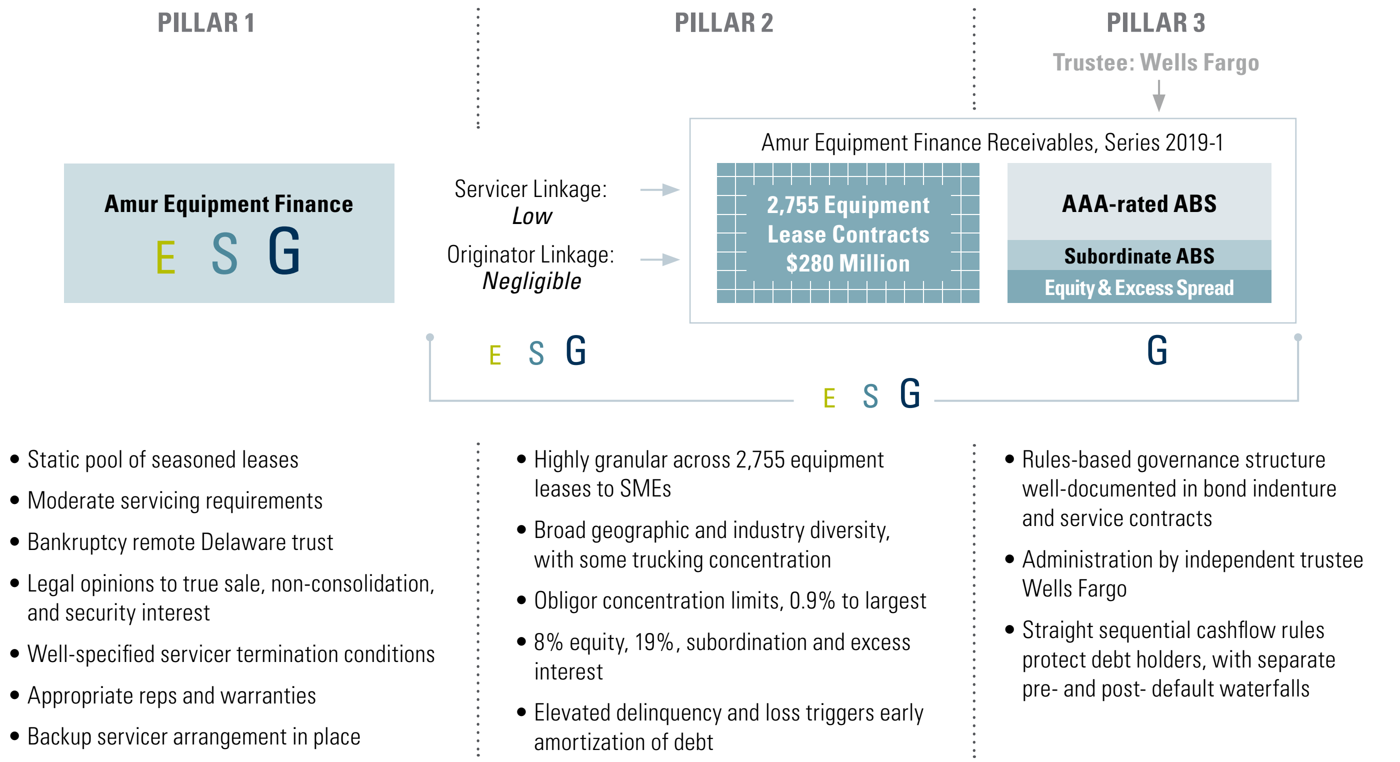
Next, we assess the strength of corporate linkage between the company Amur EF and the Series 2019-1 trust. The ESG risk at Amur EF is only relevant to the securitization to the degree that there is a meaningful corporate linkage to the trust.

We assess the corporate linkage of Amur EF as an originator to be negligible. The 2019-1 trust is a static pool, which means that all lease contracts in the trust are sold into the trust at its inception and have already been originated by Amur. The quality and capacity of Amur for future lease originations is not particularly relevant to the trust.

We assess the servicing linkage of the trust to Amur EF to be low. Amur is the designated servicer for the trust collateral so there is some linkage. However, the exposure of the trust to severe ESG events at Amur EF is mitigated by several factors. Based on review of legal opinions of true sale, non-consolidation, and security interest, we find that the Series 2019-1 trust adequately protects against risk that the assets of the trust could be attached in a bankruptcy of Amur EF. The servicing requirements for equipment lease contracts are not particularly complex. There are well-specified conditions for replacement of Amur EF as servicer in the event of underperformance and Wells Fargo is an experienced designated back-up servicer for the trust in this event. Since we deem the servicing linkage of Amur EF to the trust to be low, Amur EF's corporate ESG exposure is mitigated within the Series 2019-1 trust. This is evident in the much smaller size of the ESG exposure symbols beneath the corporate linkages in **Exhibit 6**.

The next pillar of assessment of Series 2019-1 is ESG risk that arises through the lease pool itself. Note from the absence of symbols below the lease pool in **Exhibit 6** that we have assigned no ESG risk to the lease pool. The pool of 2,755 contracts is highly granular with no single borrower

EXHIBIT 6: Amur Equipment Finance Receivables, Series 2019-1



The size of the E, S, and G symbols represents relative ESG risk exposure from that category. For illustrative purposes only.

concentration over 1%. Lease contracts are diversified geographically across the U.S. with diversity across industries and a moderate concentration to trucking. These amount to minimal risks at the lease pool level, which is further mitigated by a substantial equity position of Amur EF beneath the notes and structural protections that accelerate repayment of notes to investors in the event of elevated lease delinquencies or losses. Overall, we deem there to be negligible ESG risks to the trust through the lease pool itself.

Finally, examining the rightmost pillar in Exhibit 6, we deem there to be low governance risk deriving from the Series 2019-1 trust structure. As the seventh securitization in the shelf, we have long historical experience with this structure. We verified that the 2019-1 trust has well-specified rules for the distribution of lease cashflows to note investors, that these rules and Amur's responsibilities are appropriately established in the note indenture and service contracts, and that the trust is operated and administered appropriately by trustee Wells Fargo. (We do recognize an additional risk factor however in Wells Fargo's own checkered profile.)

The governance risk in this simpler trust structure contrasts with the higher governance risk at the Amur EF operating company. We have developed assessments of the ESG risks for Series 2019-1 that derive from each pillar:

- corporate linkages to Amur EF,
- the lease pool itself,
- the trust governance structure.

In a final step we aggregate these three sources of ESG risk into a single ESG risk measure for the Series 2019-1 trust (see the bracket in **Exhibit 6**). Overall, we deem the environmental risk to be negligible, the social risk to be very low, and the governance risk to be low. This contrasts with the higher ESG risk assessed for the company Amur EF, which does not benefit from the simpler independent governance structure of Series 2019-1. **We commonly find through this type of bottom-up analysis that securitizations have lower overall ESG risk exposures than the company-level risk of their originators.**

A survey of ESG risk across securitization sectors

With an appropriate ESG assessment framework for securitized notes in hand, one can apply this framework broadly to sectors and issuers to obtain a map of exposure levels across the structured fixed income universe. On the following page, using the framework described in the prior section, our analyst team has constructed an **ESG Risk Assessment Heat Map (Exhibit 7)** showing the range of ESG exposure we find across more than 30 individual segments of the securitized markets.

Within each sector there are typically multiple issuers. Where differences across the issuers in a sector are meaningful, we show a range of ESG exposures in that category to reflect this variability. For instance, on the map the degree of social risks for different subprime auto ABS issuers ranges from very low (light green) to severe (red). Each issuer has its own profile of corporate linkages of various strengths to companies with varied ESG exposures. Each issuer also has its own trust governance structure and distinct collateral pool attributes. In subprime auto lending in particular, there is a diverse spectrum across issuers on the affordability, rates, and transparency of their lending, a key contributor to the level of social risk in their loan product (at one end might be GM Financial, at the other a "buy here-pay here" issuer). The range shown within each risk category therefore represents the assessed difference in risk across issuers in that sector.

Observations

1) One immediate conclusion from the map is that ESG risk exposure levels across the securitization market are often low, particularly for environmental and governance risk. As a point of reference, the degree of ESG risk exposure for unsecured corporate bonds, as assessed by third-party researchers, has a wide range.[6] Securitizations often have a lower risk profile than unsecured corporate bonds, reflecting advantages that their independence, simplified structures, and diversified collateral pools provide. These types of structural risk mitigants, are not a feature unique to the securitization market. Secured corporate bonds, with their own dedicated collateral pool, also benefit from these structural ESG risk mitigants. Municipal revenue bonds frequently benefit from structural protections that mitigate the extent of direct exposure to ESG risk of the municipality.

1) Another observation is that residential mortgage-backed securities (RMBS) appear to have elevated social and governance risk relative to other securitized sectors. For MBS sectors related to the Financial Crisis, including legacy pre-crisis and modified re-performing RMBS, this should come as no surprise as these loans are performing more poorly than underwritten, involve heavy servicing burdens, and are challenging borrowers' capacity to afford them. However, Agency MBS, typically regarded as U.S. government risk, and Credit Risk Transfer (CRT) are assessed to have moderate to high social and governance risk exposure. The reason for this is the very high corporate linkage of both sectors to the U.S. housing agencies. Agency MBS loans are guaranteed by agencies like Fannie Mae and Freddie Mac. CRT represents deep subordinated credit exposure to these same mortgage pools. Both exhibit an unusually strong corporate linkage for a securitized sector. Given the legislative uncertainty over the future of the agencies and the role they may play in responsible lending in the U.S., a moderate level of social and governance risk is assigned to agencies and therefore, with the tight corporate linkage, to the MBS itself. While MBS risks may be elevated over other securitization sectors, agency MBS risk exposures are still modest in the context of many corporate ESG exposures.

1) Certain consumer ABS sectors exhibit elevated social risk that relates to concerns over the social value of the underlying lending product. FFELP student loan ABS, marketplace consumer ABS and certain subprime auto ABS place questionable debt burdens on borrowers. In addition to possible social detriment, these lending products may bring media and regulatory scrutiny which elevate their risk profile.

1) Other securitization sectors that show more elevated social and governance risk exposure include whole business ABS, rental fleet ABS, FFELP student loan ABS, timeshare ABS, and collateralized loan obligations (CLOs). The elevated risk profile in these sectors is related to their higher than typical corporate linkage. Whole business securitizations, in particular, are credit pass-throughs to the underlying company and essentially share the underlying company's ESG exposure. Rental fleet and timeshare ABS depend to a much greater degree on the corporate health of their issuer than most securitizations. FFELP ABS student loans, like agency MBS loans, are guaranteed by the federal government and sensitive to program changes. CLOs, diversified pools of high yield corporate loans, are still subject to some elevated risk from these corporate linkages on larger portfolio positions.

[6] To get some context on the range of corporate ESG risk exposures, Sustainalytics distributes ESG risk across its company universe as 25% Low, 40% Medium, 25% High, and 10% Severe

EXHIBIT 7: BBH ESG Risk Assessment Heat Map Across Securitized Product Sectors

MBS	ENVIRONMENTAL RISK	SOCIAL RISK	GOVERNANCE RISK
Agency		Concentrated exposure to U.S. housing agencies	Highly dependent on shape of agency reform
Re-performing		Exclusively non-performing loans to troubled borrowers	Elevated servicing requirements for modified loans
Jumbo Prime	Predominantly larger footprint homes	Some gentrification and rental impact concerns	
CRT		Concentrated, junior exposure to housing agencies	Highly dependent on shape of agency reform
Pre-2008 Legacy		Large component of non-performing loans	Structural failures, unanticipated modifications, servicer volatility
CMBS			
Single Borrower	Possible single site exposure but typically mitigated		
Conduit			
ABS – Consumer			
FFELP Student Loan		Concern over unaffordable student debt load	Some structural shortcomings in face of defaults and extensions
Brick and Mortar		Low debt service burden but to near-prime borrowers	
Marketplace		High balance loans, online origination, no bank license	Concerns over single bank license model
Subprime Auto	Financing for internal combustion autos	Essential use loan but to subprime borrowers	
Credit Card		Primarily prime borrowers	
Prime Auto	Financing for internal combustion autos		
Solar			
Timeshare		Non-essential, sales concerns, ongoing sponsor support	
ABS – Commercial Equipment			
Aircraft	Financing for emission-producing commercial aircraft		Complex security and cashflows but structures steadily improve
Container	Fuel efficient shipping mode, some accident potential	Supply chain concerns	
Large-ticket	Some vehicle financing		
Railcar	Fuel efficient shipping mode, accident potential, oil and coal		
Small Ticket	Some vehicle financing		
Fleet Lease	All vehicle financing		
Rental Fleet	All vehicle financing	Lease concentration to a single rental company	Lease concentration to a single rental company
ABS – Other Commercial			
Cell Tower	Some sight pollution concerns		
Data Center			
Drug Royalty		Some concern over high prescription pricing	
Insurance-linked			
Servicer Advance		Attention focused on mortgage servicing practices	
Small Business Loan			
Tax Lien			
Venture Debt			
Whole Business	High concentration to single underlying business	High concentration to single underlying business	High concentration to single underlying business
ABS – CLO			
Collateralized Loan Obligations	Mix of corporates with low to very high exposure	Mix of corporates with low to very high exposure	Equity-friendly note terms can vary across transactions
Unsecured Corporate Bonds			

■ Very Low ■ Low ■ Moderate ■ High ■ Severe

Applying an appropriate framework for ESG evaluation across sectors of the securitization market produces a novel profile, and one that tends to have a lower ESG risk relative to many other credit sectors. Such a framework and its resulting ESG risk mapping at an issuer and tranche level should be an important tool in managing any responsible fixed income strategy.

Impact and responsible investing for securitization markets

There are interesting aspects of the securitization market for investors beyond ESG integration. The securitization market, particularly ABS and CMBS, offers an abundant range of impact investing opportunities, including solar ABS, energy conservation ABS (PACE[7]), electrical vehicle lease ABS, and ABS for consumer loans to minorities. The proportion of "sin" industries within securitizations is de minimis, with negligible firearm, liquor, adult, or defense concentrations in pools, and practically no casino exposure in CMBS. As shown in the prior section, there are generally few high ESG risk exposures in securitization markets. Issuers are for the most part financing essential services across a diverse range of U.S. industries and localities.

Finally, following the passage of the Dodd-Frank legislation in 2010, issuers of securitizations are now required to provide investors greater transparency into their business models, their loan and lease portfolios, their representations and warranties, their contractual agreements with third parties and their underwriting and servicing practices. A typical ABS prospectus, for example, is four times the size of an issuer's corporate bond prospectus. Participating in securitizations is a direct way for an investor to motivate additional company disclosures that shine further light on its ESG risk profile.

Conclusions

The thrust of this study has been the integration of securitized notes, a class representing more than one quarter of U.S. fixed income, into an appropriate framework for ESG evaluation. This securitization framework takes its place alongside our existing ESG frameworks for corporate bond and corporate equity evaluation.

There is currently an ESG void among fixed income managers' structured product allocations and a resulting presumption that securitizations are, on balance, a detractor from an ESG risk viewpoint. Empirically, however, the opposite is shown to be true. Analysis of the highest severity ESG incidents at U.S. corporations since 2010 reveals that the median associated price drawdown for equity of those companies was -16%, for their corporate bonds -3%, and for their securitized notes, 0%.

The ESG evaluation framework described in this study sheds light on this empirical evidence because it is customized to the unique features of securitizations. Instead of excluding or simplifying the securitized components of a portfolio during ESG assessment, this framework identifies the nature and strength of a securitization's corporate linkages, assesses the quality and diversity of its underlying loan or lease pool and analyzes the governance features of its independent legal structure. It is applied to over 30 sectors of the securitized marketplace. **In this context we observe that the securitization market produces a novel ESG profile, and one that (excluding a few conspicuous assumptions) is generally an overall lower-risk ESG exposure.** Using the developed framework affords a fixed income manager the opportunity to broaden their existing ESG integration approach beyond their current corporate holdings. Such a framework and its resulting ESG risk mapping at an issuer and tranche level should be an important tool in managing any ESG-responsible fixed income strategy.

[7] Property assessed clean energy financing

Appendix 1

Return analysis methodology

1) Using Sustainalytics historical ESG incident reporting, we identify companies that have experienced the most severe ESG incidents (Impact rating of 5 or higher) from 2010 to present.

2) We identify the subset of these companies with listed equity, corporate bond and securitizations outstanding at the time of the incident.

3) We further limit the sample to investments where Bloomberg or equivalent daily price information is available for all of the relevant securities.

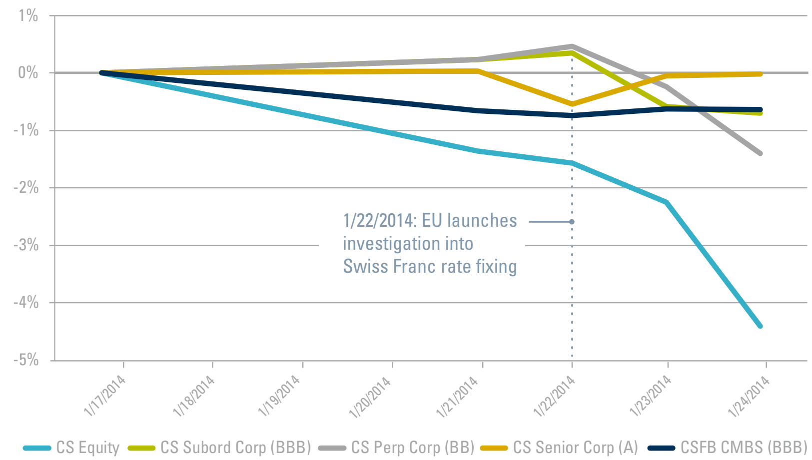
4) Surrounding the date of the incident, we record the price return performance of representative equity, corporate, and securitized issues, focusing on the period of days or weeks surrounding the event. Where multiple securities of a type are available, we use those with the highest trading volume and size.

5) We compare event-related performance across the equity, corporate bonds and securitized notes related to the company experiencing the severe ESG event.

Appendix 2

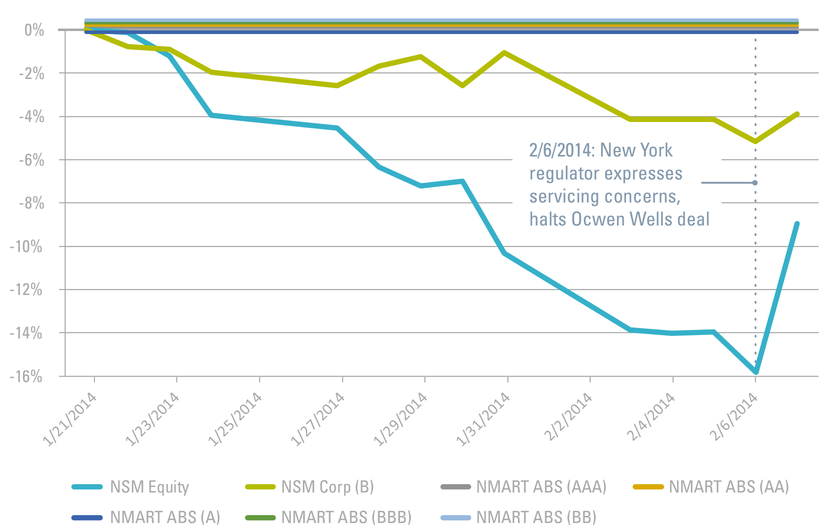
Return analysis data samples

Cumulative Price Return Accompanying ESG Incident: Credit Suisse



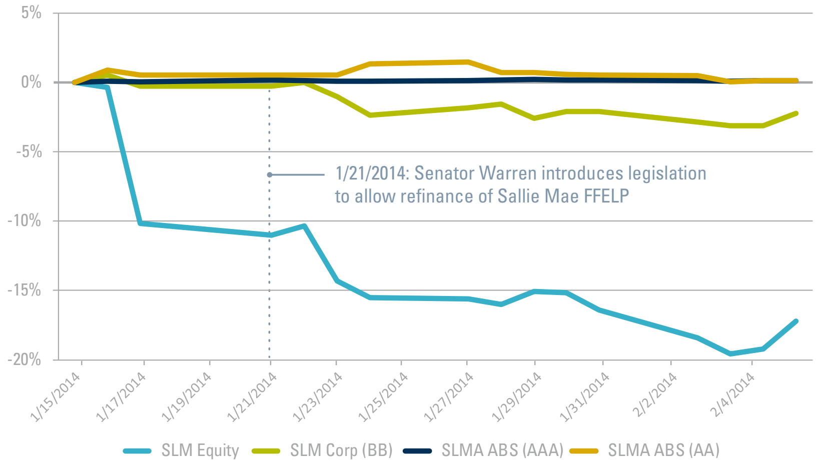
Sources: Bloomberg and BBH Analysis

Cumulative Price Return Accompanying ESG Incident: Nationstar



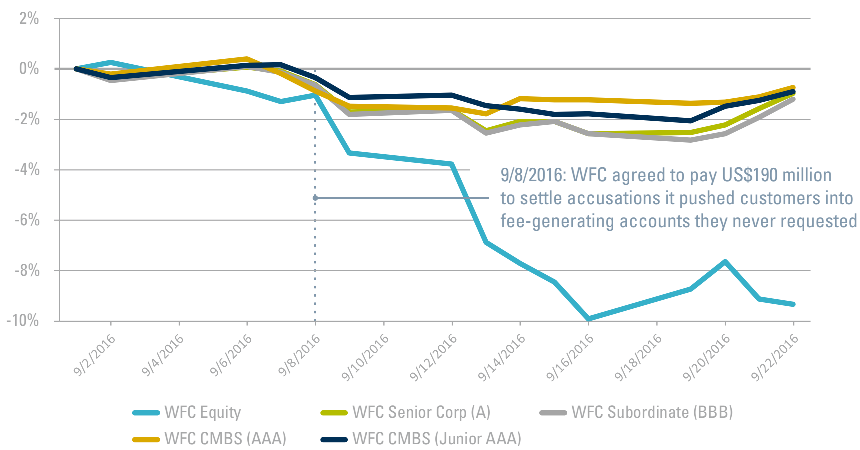
Sources: Bloomberg and BBH Analysis

Cumulative Price Return Accompanying ESG Incident: Sallie Mae



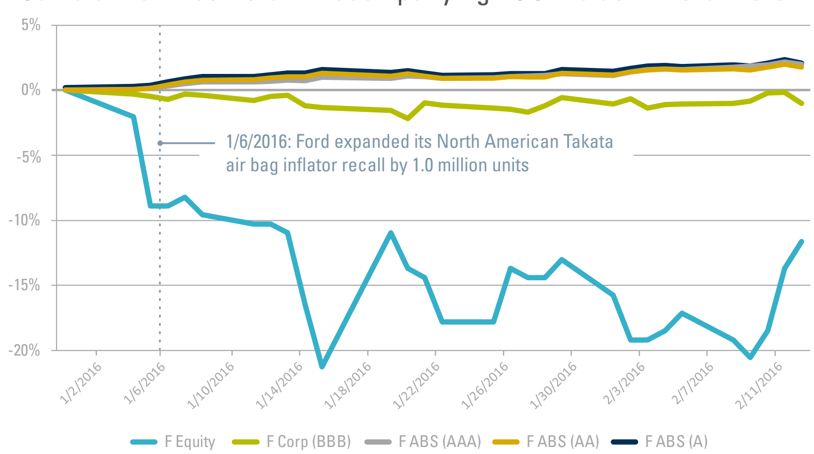
Sources: Bloomberg and BBH Analysis

Cumulative Price Return Accompanying ESG Incident: Wells Fargo



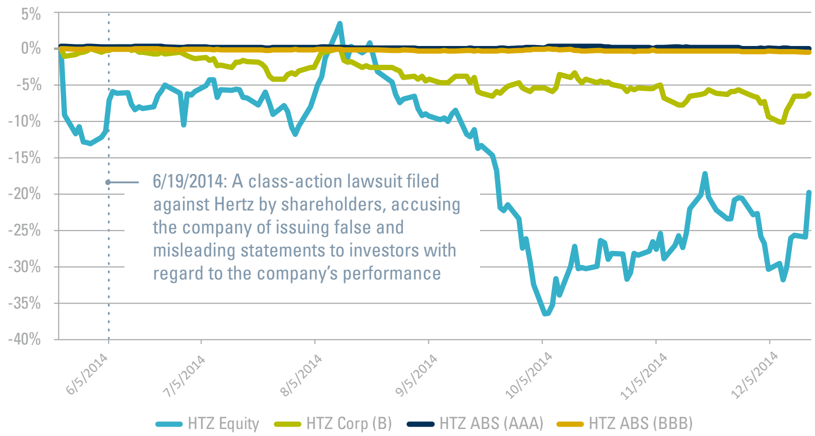
Sources: Bloomberg and BBH Analysis

Cumulative Price Return Accompanying ESG Incident: Ford Motor



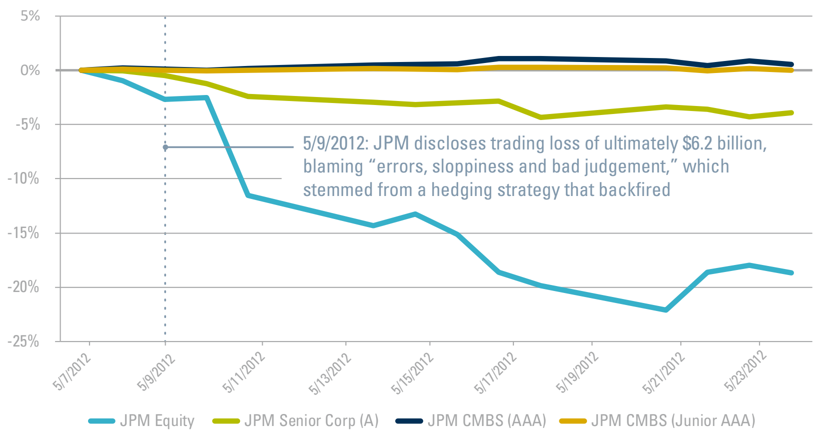
Sources: Bloomberg and BBH Analysis

Cumulative Price Return Accompanying ESG Incident: Hertz Rental



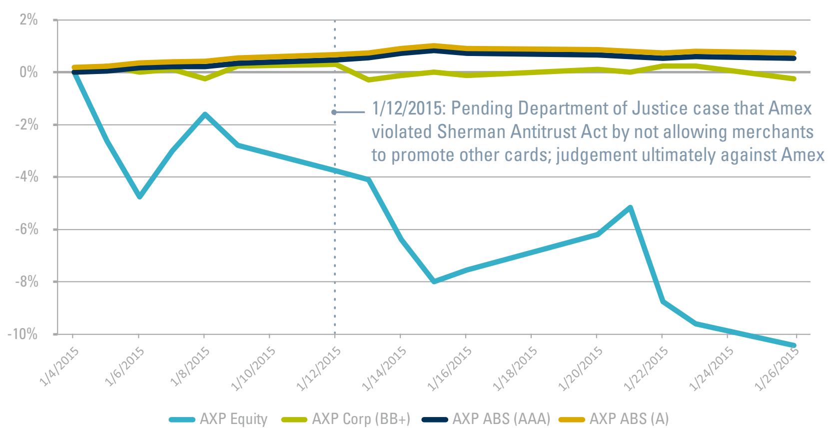
Sources: Bloomberg and BBH Analysis

Cumulative Price Return Accompanying ESG Incident: JP Morgan



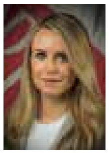
Sources: Bloomberg and BBH Analysis

Cumulative Price Return Accompanying ESG Incident: American Express



Sources: Bloomberg and BBH Analysis

Additional BBH contacts



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Past performance does not guarantee future results.

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