Electric Vehicle Lease Securitization

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SUS 6175 - Capital Markets

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1. Executive Summary

Due to increasing crude oil costs, energy security, consumer demand, and rising fuel and air quality standards, 841,000 plug in hybrid vehicles (PHEV) and electric vehicles (EV) are predicted to be sold in the US by 2015 (Pike Research, 2010). With the average EV costing more than a conventional internal combustion engine (ICE) vehicle, there is a market and social need to drive down the cost of EVs with financial tools such as lease securitization. While traditional auto leases are already securitized, there are no sustainability focused auto securities. An all EV security would increase the risk as compared to traditional auto securities because of the inclusion of the batteries and their unknown residual values (Hind 2010).

After conducting a thorough analysis of the securities market, the first recommendation is to create a “green” vehicle security that will include not only EVs, but also other low carbon vehicles such as: hybrid, natural gas, and biodiesel vehicles. By creating the All Green Vehicle Security the EV battery risk is diversified and investors are given an additional sustainable and responsible investment option that will support the development of a clean transportation system. The All Green Vehicle Security will result in lower lease costs and make EVs more affordable, thereby increasing the positive social and environmental benefits that EVs provide, such as reduced green house gases and decreased dependence on foreign oil.

The next recommendations call for govern to enact tougher regulations and extend of the federal EV tax credit. It is recommended that companies that package loans into securities should to be required to hold at least 5 percent of the credit risk and that lessors be required to enact stricter lease screening criteria. It is also recommended the federal $7,500 tax credit that is currently available for the first 200,000 EVs produced by each manufacturer be extended to the first 500,000 vehicles. These recommendations will support the All Green Vehicle Security, making it a safe, sustainable investment tool. The following is an analysis of the securitization of EV leases and detailed final recommendations.

2. History and Context

Securitization is the process of pooling a group of illiquid assets into a security. There are different kinds of securities including covered bonds and structured finance, as illustrated in Figure 1.

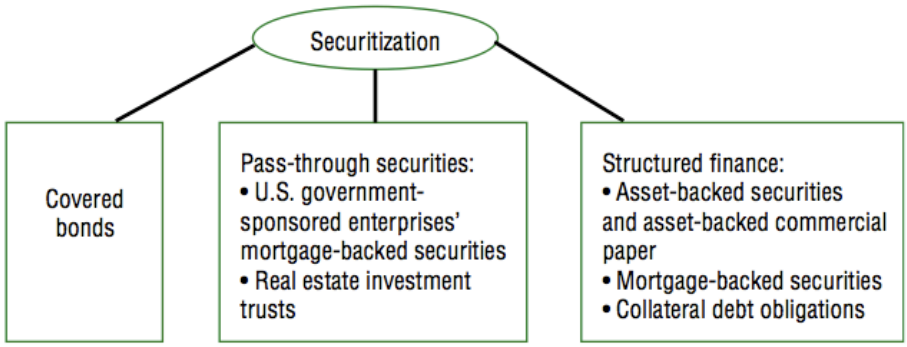

Figure 1: The Securitization Landscape (IMF, 2009)

Structured finance includes asset-backed securities (ABS), mortgage-backed securities (MBS) and collateral debt obligations (CDO). Not surprisingly, ABSs are referred to as such since they are backed by the cash flow of underlying assets. The assets can be of many different types including auto leases, credit card receivables, aircraft leases, movie revenues, morgages and student loans. When the backing asset is a mortgage, it is referred to as an MBS.

The first ABS dates from 1985 when the Sperry Lease Finance Corporation created securities backed by its computer equipment leases. Securitization has grown substantially from a non-existent industry in 1970s, as illustrated in figure 2 (Cowan, 2003).

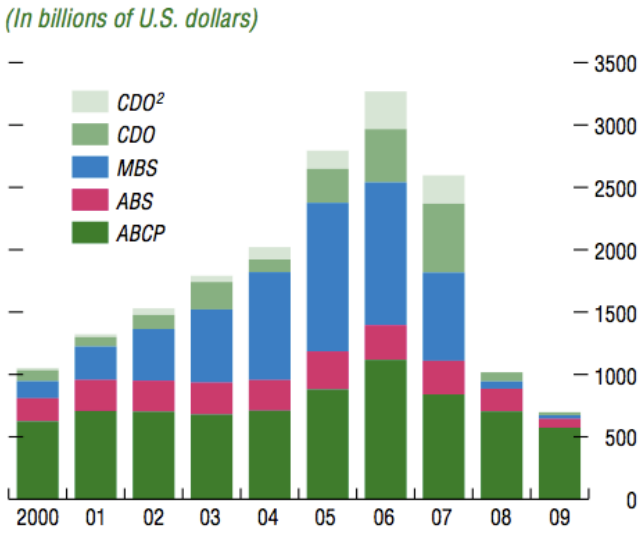

Figure 2: U.S. Securitization Growth (IMF, 2009 pg. 84)

Historically MBS have been the largest asset class in this market, but the U.S. private-label MBS markets collapsed almost completely in 2008 (IMF, 2009, pg. 81).

The growth in the ABS market is now in auto securities. More than 60% of bonds sold in 2010 were auto-sector bonds (Shrivastava, 2010). Current customers of auto securities include banks, insurance companies, retirement or pension funds, hedge funds, investment advisors and mutual funds. Many investors like these securities because they have traditionally been a safe investment offering a good return and diversification (Emerald Connect, n.d.). Figure 3 illustrates a simplified process flow of how an auto lease can become a security investment.

Figure 3. Auto Lease Securitization

It starts when the lessee signs a lease with a lessor and agrees to pay monthly payments to the lessor. Then the lessor takes a bundle of leases and sells them to a Special Purpose Entity (SPE). The lessor often retains a connection to the assets following a securitization by acting as a servicer — the agent collects regular lease payments and forwards them to the SPE, receiving a fee for that service. The securities are exchanged with an underwriter for cash. The underwriter then issues securities backed by those leases and sells them to investors (Cowan, 2003).

Taking a closer took at these leases, there are two main types of auto leases: closed-end and open-end. A closed-end lease has the residual value set in the contract, while in an open-end lease the market value of the vehicle is determined at the end of the lease and then the lessee is responsibility for the difference. Most collateralized auto-

leases are closed-end leases. This puts the majority of the residual value risk on the lessor (DBRS, 2010).

Another important consideration is titling. Retitling vehicles can be a cumbersome process that requires a lot of effort and expense. The solution is to assign the titles initially to a titling trust which is a trust formed just to hold vehicle titles. At the time of securitization, the originator transfers a beneficial interest in the titling trust to the securitization trust. In most states, this solves the problem of retitling the vehicles because the legal owner of the vehicles does not change (Litwin, 1996).

To form an auto lease security, two structures are predominantly used. The first is the simple transfer of the beneficial interest in a titling trust and the second is the more complicated sale-leaseback structure. In the first structure, a special unit of beneficial interest (SUBI) is created as a beneficial interest in the titling trust. Then the SUBI is transferred to accomplish the securitization (DBRS 2010; Litwin 1995).

In the second form, the SUBI is created but then transfered to an SPE through a true sale or a series of true sales (DBRS 2010; Litwin 1995). The SPE can be a corporation, LLC, partnership or trust. The SPE structure is also useful to separate the security financially from the originators so that the credit rating or possible bankruptcy of the originator does not affect the security (MWE 2005). Once the SPE has the SUBI certificates, it in turn contributes them to the securitization trust. The trust issues securities and the proceeds are used to purchase the SUBI certificates (DBRS 2010; Litwin 1995).

Every ABS is given a risk assessment rating. Normally, after review, auto lease securities achieve a AAA rating which lowers the cost of capital (DBRS, 2010; MWE 2005). Some of the risk factors that are reviewed are:

- Quality of management and financial condition of the sponsoring entity
- Originations, underwriting and servicing capabilities
- Collateral credit quality and performance of originator’s auto lease portfolio

- Residual values
- Transaction capital structure, proposed ratings and credit enhancement
- Cash flow analysis including lease defaults, turn-in rates and residual losses
- Legal structure

3. Capital Markets and Sustainability

EVs have significant environmental and social benefits. EVs have no tail pipe emissions which means they are better for air quality and significantly reduce green house gas (GHG) emissions. Currently over 33% of U.S. GHG emissions come from transportation (EPA, 2011). According to the U.S. DOE, when comparing the lifecycle emissions of EVs to conventional ICE vehicles, EVs reduce CO_2 by 28% (2011). This reduction increases significantly when looking at states like California where the energy mix is cleaner. In fact, the California Energy Commission (CEC) claims that with the electricity fuel mix in California, EVs reduce GHG emissions by 74% (CEC, 2009). In addition to reduced GHG emissions, when considering human health, damage to ecosystem quality and damage to resources, EVs have 220% less impact than gas powered cars (see figure 4 below) (Gauch et al., 2009).

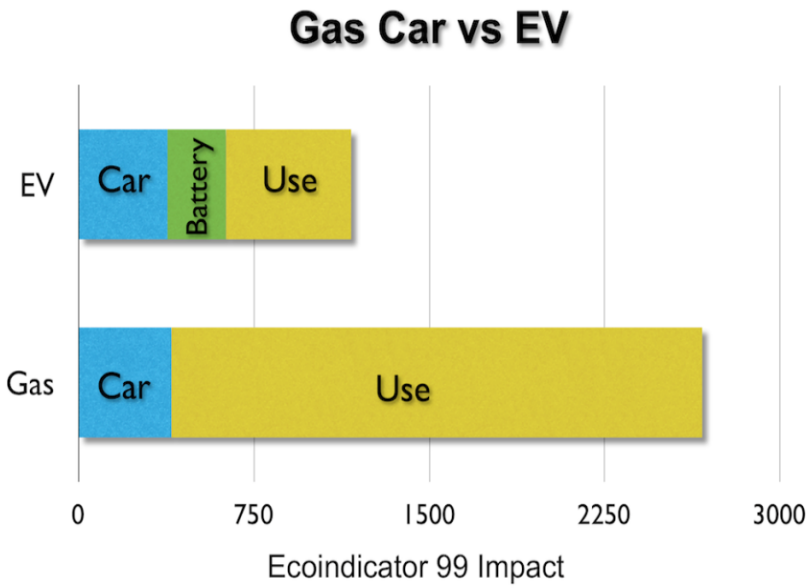

Figure 3. Gas Car Versus EV Lifecycle Impact Comparison (Gauch et al., 2009)

EVs can also decrease U.S. dependence on foreign oil and create jobs. Last year alone, the United States sent $250 billion dollars to other countries for oil (US Census, 2010). Transportation accounts for over 50% of this oil usage as shown in figure 5.

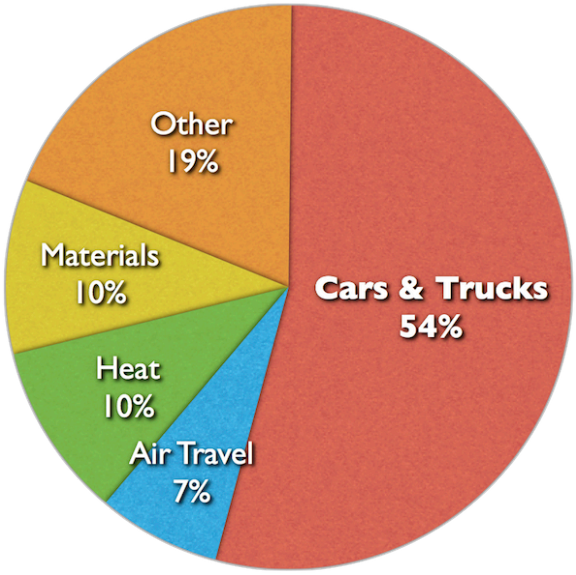

Figure 5. Oil Usage by Sector

By electrifying our transportation, we can eliminate our dependence on foreign oil and put money back into the U.S. economy by establishing renewable energy generation domestically. This has the potential to revitalize the declining U.S. economy and create 1.9 million jobs by 2030 (Electrification Coalition, 2009). For these reasons, anything that promotes EV ownership will have inherent and significant social and economic benefits.

4. Analysis of Issues and Barriers

High EV battery prices are impacting the traditional direct to consumer vehicle sales model. Leasing is an attractive option for consumers interested in EVs. According to Accenture, "leasing makes EVs affordable by reducing the high up-front purchase price by spreading it out over a determined period of time" (Accenture, 2010).

For instance, when looking at the initial costs of financing an EV, such as the new Nissan Leaf, it would cost roughly $542 per month (15% cash down at 6.23%) for 60 months versus a lease at $349 for 36 months (Cars.com, 2010). While this example does not take into account the maintenance and residual value of owning the EV, it does significantly reduce the monthly payments – high monthly payments is a significant barrier for many people. It should also be noted that there is a considerable cost savings with EVs by not needing to purchase gas (Cars.com, 2010).

Another factor that makes EVs more affordable is the $7,500 federal tax credit. When an EV is leased, this tax credit goes to the lessor which lowers the lease rate. For example, with the tax credit the Nissan Leaf is leased at $349 per month but without this credit it would cost $558 per month (Cars.com, 2010). Dave Barthmuss, Manager of Public Policy, Environment and Energy at GM, said “the only way that they can offer the Volt at $350 is by GM receiving the $7500 tax credit” (personal communication, March 16, 2011). (See Appendix for letter to congress urging them to expand this credit.)

While EV leases are an important way to bring down the cost of EVs, issuers would not be able to offer them if they weren’t able to package them into ABSs. There are two reasons why auto ABSs are important. First, auto ABSs are designed in such a way that they are issued with a AAA rating. This higher credit rating results in a lower interest rate. Specifically, a 10 percent increase in securitization activity leads to a decrease on yield spreads between four and 64 basis points (Sabry & Okongwu, 2009). Secondly, packaging the leases into an ABS removes it from the books of the originator and frees up capital for them to issue additional leases (MWE, 2005).

Unfortunately, due to the failing mortgage security market, ABSs have developed a negative stigma (J. Katovich, personal communication, March 30, 2011). Some investors may question the stability of the auto ABS market. There are several reasons why the auto ABS market is safer than MBSs. First, the entire mortgage market was predicated on the belief that home prices would never go down. Issuers used their faith in this assumption to justify unsafe loan practices. When the market turned, it affected

everyone everywhere and these MBSs became toxic. Auto leases, however, assume that the vehicle will be worth less at the end of term.

However, there are still risks associated with auto ABSs. The two main categories of risks, default risks and residual value risks, are discussed below, including different techniques to alleviate these risks.

The MBS market assumed that even in the event of an economic downturn, only a small percentage of homeowners would default and this percentage could be determined by looking at historical default numbers. What the statisticians did not factor in to their ratings was the widespread home speculation and that it could only be sustainable if home prices kept increasing. When home prices fell, it had national repercussions and default rates exploded far beyond historical default rates.

Auto lease ABSs are relatively immune to this problem since auto prices are assumed to fall over time and auto leases are not used for speculative investments. Nonetheless, in times of slow auto sales, manufacturers sometimes offer low-rate leases and easy qualification in order to sell more cars. If this practice is widespread and then those leases are securitized with an inflated credit rating, an economic downturn could also cause a high-percentage of defaults and possibly collapse the affected security.

One risk that MBSs don’t have the auto lease ABSs do is residual value risk. With MBSs, it is assumed that under normal circumstances, the home will never be returned to the mortgage issuer. However with auto leases, the vehicle is normally returned to the lessor at the end of the lease period so the lease issuer bears the risk of the residual value of the vehicle. This is mitigated somewhat by specifying penalties for damage, driving too many miles and other factors that will lower the resale value of the vehicle, but external factors, such as disruptive technology and gas prices, that lower the residual value are still a risk.

EVs also contain additional risks not present with conventional ICE vehicles. First, EV battery technology is still new and the battery life and reliability is unknown (hybridcars.com, 2009). If the battery lifetime is less than expected, there could be additional costs to replace it. Temperature fluctuation and heavy use could cause some early battery failures (Buchmann, 2010). However, there is some precedent for long battery life and tests have demonstrated battery life equivalent to 180,000 miles (SCE, 2008). Additionally, battery technology could advance significantly, making current EV batteries obsolete (Bullis, 2010).

Countering the risk, EVs are much simpler and more reliable than ICE vehicles and should last significantly longer. The main reason is that the very complex gas engine with hundreds of moving parts is replaced by an electric motor that has only one moving part (Delucchi, 2000).

In the end, while there are some factors that could make EV residual values higher than expected, there are others that could make it lower. Since there is no historical data on EV residual values, EV lease security costs will be higher (Garthwaite, 2010; Hind, 2010) . Auto manufacturers may also try increasing sales by offering lower lease payments by assuming artificially high residual values. While this may lead to end-of-term losses, it is mitigated by the higher vehicle sales (DBRS, 2010).

To alleviate residual value risk, it is necessary to include a wide diversity of vehicle makes, models and years in the security. This way, if any particular segment of vehicle falls unexpectedly in value, like sport utility vehicles (SUVs) did when oil prices spiked in 2008, the effects will be mitigated by the other vehicles in the security (DBRS, 2010). Other ways of mitigating residual value risk include: third party residual value insurance, residual value guarantees and reserve accounts (Litwin, 1996).

5. Recommendations

5.1 All Green Vehicle Security

In order to bring down the risk of EV lease securities, it is important to include a wide range of vehicles. Therefore the first recommendation is to create an All Green Vehicle Security which will include not just EVs in the security, but all “green” vehicles. Green vehicle is defined as high-mileage/low carbon gasoline vehicles, hybrids, and vehicles that use natural gas, biodiesel fuel and any other emerging alternative fuels. In this way, the security will still appeal to sustainability-minded investors that want to support the development of a cleaner transportation system, but will be diverse enough to avoid the risks that may occur with just EVs in the security.

5.2 ABS Regulations

The MBS market highlighted the possibility that securities can be misused leading to potentially disastrous results. Many of the MBS abuses revolved around speculation that home prices would always go up which enticed unqualified buyers to speculate on home purchases and lenders to approve these buyers. Since auto leases do not lend themselves to speculation, this type of abuse will not likely happen with auto lease securitization. Nonetheless, there may be other abuses and there are several regulations that could be enacted to help prevent them.

The recommended regulatory controls are:

- Companies that package loans into securities need to hold at least 5 percent of the credit risk.
- Lessees will need to make a down payment of at least 10% of the entire lease amount.
- Require income verification.
- Loan payments will not exceed 10% of a lessees pretax income.
- Credit rating agencies can be sued if a security fails and it can be shown that it was over-rated.

5.3 Expand EV Tax Credit

The federal tax credit of $7,500 is vitally important to reducing the cost of EVs and making them affordable. Currently, this credit covers only the first 200,000 EVs produced by each manufacturer. There is a bill in the Senate right now, S. 232, which would expand this credit to cover the first 500,000 vehicles. Passing this bill is very important to the future of EVs. (See Appendix for letter to congress urging them to pass this bill.)

These recommendations will support and perpetuate the All Green Vehicle Security, giving investors a safe, sustainable investment tool to support the development of the clean transporation system, reduce U.S. dependence on foreign oil and stimulate the U.S. economy.

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7. Appendix

7.1 Letter Regarding SB S232

Max Dunn
Obrie Hostetter
Jamie Jones
539 Octavia Street, Unit 4
San Francisco, CA 94102

March 14, 2011

Chairman Max Baucus
511 Hart Senate Office Building
Washington, DC 20510

Dear Chairman Baucus:

We are writing to urge you pass Senate Bill S. 232 to the Senate.

S. 232 is currently being reviewed by the Senate Committee on Finance and needs your help to move to the Senate. This bill increases the per-manufacturer cap for the plug-in hybrid $7,500 tax credit from 200,000 vehicles to 500,000 vehicles.

We strongly urge you to pass this bill to the Senate because it will promote electric vehicle adoption which will have the following dramatic benefits for the United States: revitalize domestic manufacturing, stimulate the economy, reduce transportation related emissions, and decrease U.S. dependence on foreign oil.

Electric vehicles (EVs) have the power to revitalize the declining domestic automotive industry and bring manufacturing jobs back to the U.S. However, like many disruptive

technologies, EVs needs government support to reduce the cost to American consumers in the early years while manufacturing becomes scalable and profitable. Currently EVs cost about $16,000 more than a similarly equipped gas vehicle; the tax credit is critically important to reducing the difference to a more management $8,500.[1] For that, each EV owner will save about $16,000 in energy costs over the life of the EV and the American economy will stimulated by $26,000 per vehicle.[2]

Over 33% of U.S. green house gas (GHG) emissions coming from transportation. EVs, with zero tail pipe emissions, can significantly reduce this impact. For example, the California Energy Commission shows that with the current electricity fuel mix in California, EVs reduce GHG emissions by 74%.

How many Americans know that last year we sent $250 billion dollars to other countries for oil?[3] Or that by electrifying our transportation we can eliminate our dependence on foreign oil?[4] The key to our energy independence is to encourage Americans to buy EVs.

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[1] Chevy Volt $41,000, Chevy Impala $25,215. Retrieved March 10, 2011 from http://www.chevrolet.com /compare-vehicles-results/?modelYear=&year=2011&pvc=500&comparisonVehicles=325757&sValue=

[2] Assuming $3.50 per gallon and 26 miles per gallon for a gas car, $0.11 kWh and 4 miles per kWh for an EV, and a vehicle life of 150,000 miles. The gas cost over the life of the car is $20,000 and the electricity is $4,000, for a $16,000 savings. Using an economic multiplier of 1.3 and assuming that the $20,000 normally spent will now go for electricity and other purchases, this creates an economic benefit of $26,000. Zandi, M. (January 2008). Assessing the Macro Economic Impact of Fiscal Stimulus 2008. Moody's Economy.com. Retrieved from http://www.economy.com/mark-zandi/documents/assissing-the-impact-of-the-fiscal-stimulus.pdf

[3] In 2010, the U.S. imported 9.3 mbd of oil at a cost of $252 billion. See Exhibit 17: U.S. Census Bureau. (March 10, 2011). U.S. International Trade in Goods and Services. January 2011 U.S. Census Bureau. U.S. Bureau of Economic Analysis. CB11-41, BEA11-09, FT-900 (11-01). Retrieved from http://www.census.gov/foreign-trade/Press-Release/current_press_release/ft900.pdf

[4] Light-duty vehicles used 8.68 mbpd equivalent in 2010. EIA. (December 16, 2010). Energy Outlook 2011. Table A7. Transportation Sector Key Indicators and Delivered Energy Consumption. Retrieved from http://www.eia.gov/forecasts/aeo/pdf/tbla7.pdf

For the health and wealth of our future, we strongly urge you to review S. 232 and recommend that it be passed by Senate. Thank you for your time and consideration.

Sincerely,

Max Dunn

Obrie Hostetter

Jamie Jones

CC: Orrin Hatch, Jeff Bingaman, Maria Cantwell, Benjamin Cardin, Thomas Carper, Thomas Coburn, Kent Conrad, John Cornyn, Mark Crapo, John Ensign, Michael Enzi, Charles Grassley, John Kerry, John Kyl, Robert Menendez, Bill Nelson, Pat Roberts, John Rockefeller, Charles Schumer, Olympia Snow, Debbie Ann Stabenow, John Thune, Ron Wyden, Barbara Boxer, Diane Fienstein