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THE PUBLIC INVESTMENT PORTFOLIO: UNDERSTANDING STRUCTURED POOLED SECURITIES – ASSET-BACKED, MORTGAGE-BACKED AND COLLATERALIZED MORTGAGE SECURITIES

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A description of ABS, MBS and CMO, the types of securities supporting each, and their structures and characteristics.

Securitization

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- Securitization in its most basic form is the process of taking an asset or group of assets and transforming this asset or group of assets into a security which is then sold and traded in the capital markets.
- Securitization is frequently discussed in mortgage-backed and asset-backed securities.
- Securitization helps to take assets which by themselves may not be liquid and turns them into liquid securities.
- There are advantages and disadvantages to securitization:
  - One of the biggest advantages to securitization is that it allows financial institutions and corporations to free up capital to use elsewhere and also reduce their own risk which can help to facilitate the flow of capital in the economy.
  - A disadvantage to securitization is that it could encourage financial institutions and corporations to facilitate riskier transactions as the risk ultimately leaves.

Source: Wells Fargo Securities

Mortgage-Backed Securities

- Mortgage-backed securities (MBS) are created when individual mortgages (i.e. residential or commercial) are pooled together and converted into securities sold to investors.
- Investors then have a pro-rate share ownership interest in the pool of loans, including all principal and interest payments. The resulting security is called a passthrough security.
- Investors receive monthly principal and interest payments from a passthrough security.
- The final maturity of the bond may vary when compared to its stated maturity due to prepayments.
  - Prepayments can happen for a variety of reasons such as refinancing's, defaults or if the borrower simply pays more than the amount that is due.
- Passthrough securities can be split into agency and non-agency (or private-label) categories. Agency passthrough securities are issued by a government agency such as Ginnie Mae or government sponsored enterprise (or GSE) such as Fannie Mae or Freddie Mac.

Source: Wells Fargo Securities

Mortgage-Backed Securities

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- Ginnie Mae, Fannie Mae and Freddie Mac are important factors in the MBS market:
  - Help facilitate home ownership in the U.S. by assisting in the flow of credit (home loan borrowers).
  - Help enhance the availability of credit and reduce cost of credit by reducing risk of capital losses to investors.
- Ginnie Mae is explicitly backed by the U.S. government and therefore passthrough securities issued by Ginnie Mae are unconditionally guaranteed.
- Fannie Mae and Freddie Mac are not explicitly backed by the U.S. government and therefore passthrough securities issued by Fannie or Freddie are not unconditionally guaranteed. However, these entities do have the ability to borrow from the government which results in an implicit guarantee and reassurance by investors that they will receive principal (at par) despite any defaults by an underlying investor. In fact, defaults are treated as prepayments to the investor.

Source: Wells Fargo Securities

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Mortgage-Backed Securities

- The mechanics of the creation of a MBS:

Individual Mortgages

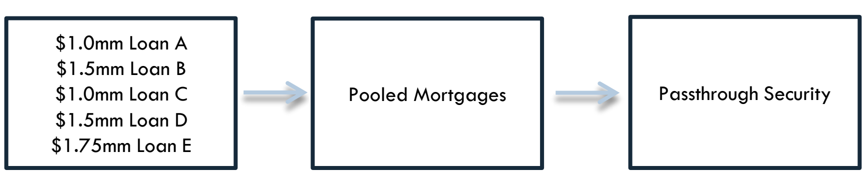
- Individual mortgage loans are underwritten by financial institutions.

Securitization

- These individual mortgages are then pooled together to create passthrough securities.

Passthrough Security

- The passthrough security will be a pool of mortgages with various underlying characteristics such as FICO scores, amount of loan, type of loan (residential, vacation home), different geographic locations, term of loan (15yr, 30yr etc.), plus others.
- All of these attributes together must be analyzed by the investor prior to purchase because they can affect an investors return in vastly different ways.
  - For example, a pool with individual loans with lower issue amounts will be less sensitive to refinancing opportunities as rates fall because the dollar amount of the incentive is much lower and thus not worthwhile to the borrower.



Source: Wells Fargo Securities

Collateralized Mortgage Obligations

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- Collateralized Mortgage Obligations (CMOs) are created when mortgage passthrough securities are pooled together and converted into securities sold to investors.
- Investors then have an ownership interest in the pool of loans, including all principal and interest payments just like an MBS.
- Investors ***may*** receive monthly principal and interest just like a passthrough.
- The biggest difference between an MBS and CMO is that a CMO is constructed by breaking up a passthrough security into tranches. These tranches represent structures that are aimed at redistributing payments (principal, interest and prepayments).
- CMOs offer a wide variety of options for investors, from low-risk, stable cashflow structures to more risky, volatile cashflow structures.

Source: Wells Fargo Securities

Collateralized Mortgage Obligations

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- The mechanics of the creation of a CMO:

Passthrough Security

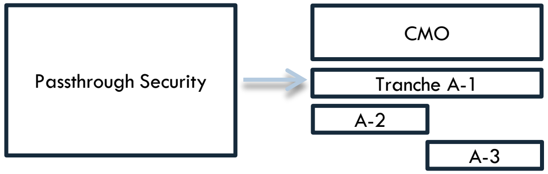
- Each CMO starts with a passthrough security.

CMO

- A CMO is created from a passthrough security by breaking up the cashflows into different tranches to satisfy various investor needs.

CMO

- The CMO is still at its core a passthrough security, therefore the same underlying characteristics that are relevant and assessed in an MBS will also be relevant and assessed in a CMO.



Source: Wells Fargo Securities

Asset-Backed Securities

- Asset-backed securities (ABS) in a general sense are created similar to both MBS and CMOs.
- ABS are created when periodic cashflows from financial assets (i.e. loans, leases or receivables) are pooled and converted into securities sold to investors.
- Before this pool of financial assets can be pulled into a security that is then sold to an investor, a trust is created that houses all of the financial assets and then issues a security in which investors can purchase.

Source: Wells Fargo Securities

Asset-Backed Securities

- The mechanics of the creation of an ABS:

Financial Assets

- Loans, leases, receivables, or other financial assets, can be sold.

Securitization

- Financial assets that are sold are then pooled together to create securities.

SPV

- These pooled financial assets can then be sold to a special purpose vehicle or SPV (also known as a "Trust"), in order to create a legal separation from the bankruptcy risk of the originator.

$1.0mm Loan A
$1.5mm Loan B
$1.0mm Loan C
$1.5mm Loan D
$1.75mm Loan E

→

Pooled loans

→

Pooled loans sold to SPV

→

ABS Security 1-A
AAA
AA
A
Equity

Source: Wells Fargo Securities

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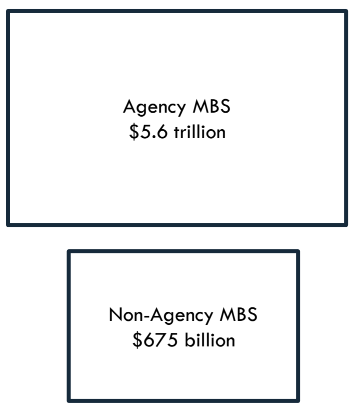
MBS vs ABS

- The MBS market is significantly larger than the ABS market:

MBS	ABS
▪ The agency MBS market is just over $6 trillion including both agency and non-agency.	▪ The ABS market is much smaller than the MBS market at $600 billion.



Source: Wells Fargo Securities, Data as of August 2015

Security Comparison

- To further understand the broader ABS market, it can be compared among different asset classes to understand basic structure.

Asset Class

Asset backed Security (ABS)	▪ An ABS is created through pooling of loans, leases or receivables, etc. Once these loans are pooled together (securitized), they are sold to investors as securities (bonds). ▪ ABS can be issued as both bullet and amortizing securities meaning principal is paid back at intervals (i.e. monthly) and not just at maturity. ▪ ABS are subject to prepayment risk as loans may be paid off in advance for various reasons.
Mortgage-backed Security (MBS)	▪ A MBS is created by pooling together individual mortgage loans. Once these loans are pooled together, (securitized) they are sold to investors as securities (bonds). ▪ MBS are passthrough securities, as the cashflows from the underlying loans are passed through to the investor who hold the bonds backed by the mortgage loans. ▪ MBS are also amortizing securities. ▪ MBS are subject to prepayment risk. As individual mortgage owners pay down their mortgage, they may pay more than the required monthly payment. These additional cashflows are passed on to the investor.
Collateralized Mortgage Obligation (CMO)	▪ A CMO is created by pooling together MBSs. These bonds are pooled together and structured in a CMO as separate tranches. The tranches vary by average life, coupon, stability, prepayment risk and credit rating, etc. ▪ CMO tranches help investors to invest in MBS with specific goals (prepayment, coupon, geography, loan type). ▪ CMOs are also amortizing securities. ▪ Although CMOs are subject to prepayment risk, the degree of prepayment risk can vary dramatically in a CMO structure based on the specific tranche.
Bullet	▪ Principal is paid at final maturity. ▪ No prepayment or call risk (unless otherwise specified as callable or make-whole option).

Source: Wells Fargo Securities

Asset-Backed Securities

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- Examples of ABS structures are listed below:

ABS Structures

Fully Amortizing	Controlled Amortizing	Soft/Hard Bullet	Floaters	Sequential Pay
Principal is returned over the life of the security.	Investors are provided with a relatively predictable repayment schedule even though the underlying assets are non-amortizing.	Returns principal in a single payment. Soft bullet: bullet payment is not guaranteed on expected maturity date. Hard bullet: Principal is paid by expected maturity date.	Floating interest rate.	First tranche receives all available principal until it is retired.. After first tranche receives all available principal, then the second tranche receives principal and so on.

Source: Wells Fargo Securities, SIFMA

Asset-Backed Securities

- A Trust is a Special Purpose Vehicle that is used to regularly issue various asset-backed securities.
  - A trust serves as the vehicle to regularly issue securities backed by specific types of assets for an issuer/sponsor. Examples of types of trusts are listed below:

<u>Master Trust</u>

- Often used for revolving lines of credit such as credit cards or receivables.

<u>Grantor /Owner Trust</u>

- Used to issue automobile-backed and mortgage-backed securities.

<u>Residual Trust</u>

- Used to issue home equity-backed securities.

Source: Wells Fargo Securities

Asset-Backed Securities

- An example of a Trust is the America Express ABS Trusts.
  - A trust serves as the vehicle to regularly issue securities backed by specific types of assets for an issuer/sponsor.
  - In this, you can see what assets are put into each trust. Securities are continuously issued under each of the trusts.

American Express ABS Trusts

($ in billions)	American Express Credit Account Master Trust (AMXCA)	American Express Issuance Trust II (AEITT)
Trust Established	•1996	• 2012
Eligible assets	• US Consumer Card Member loans • US Small Business Card Member loans	• US Consumer Card Member receivables • US Small Business Card Member receivables • US Corporate Card Member receivables
Assets in trust	•Consumer Card Member loans	• Consumer Card Member receivables • Small Business Card Member receivables
Trust Size: - Principal AR	•$27.3 billion	•$6.0 billion
Investor Interest	•$17.2 billion	•$1.3 billion
Seller Interest	•$10.1 billion	•$4.7 billion

- In this credit card example, investor interest versus seller interest is listed.
- Investor interest: the aggregate principal amount owed to the ABS investor.
- Seller interest: the residual interest in the trust that the credit card issuer is required to maintain.

Source: Wells Fargo Securities, American Express

Asset-Backed Security Issuers

- The largest, most active issuers (or sponsors) in the ABS space include commercial banks, finance companies, auto captives and industrial firms.
- The table to the right shows the top ABS issuers in 2014.

Top Issuers 2014

Rank	Issuer Name	Amount ($MM)	Market Share
1	Ally Bank	12,752	7.53%
2	Ford Credit	11,302	6.68%
3	Citibank	10,300	6.08%
4	Chase	7,350	4.34%
5	Santander (Drive)/Chrysler Capital	7,304	4.31%
6	Navient Corp./Sallie Mae	6,180	3.65%
7	Discover	5,050	2.98%
8	Volkswagen	5,000	2.95%
9	Americredit/GM Financial	4,564	2.70%
10	Toyota	4,500	2.66%
11	Capital One	4,300	2.54%
12	Bank of America	4,100	2.42%
13	Carmax	4,087	2.41%
14	Hyundai	3,820	2.26%
15	American Express	3,817	2.25%
16	Fifth Third Bank	3,750	2.22%
17	Honda	3,500	2.07%
18	Nelnet	3,246	1.92%
19	GE	3,200	1.89%
20	Mercedes Benz	3,111	1.84%
21	CNH	3,023	1.79%
22	Nissan	2,796	1.65%
23	SpringCastle	2,600	1.54%
24	World Omni	2,571	1.52%
25	John Deere	2,043	1.21%

Source: Wells Fargo Securities, Bloomberg, Informa Global Markets

Asset-Backed Securities

- Why does a company issue asset-backed securities?
  - The main reason for a company to sell assets used to issue asset-backed securities, is to free up its balance sheet.
  - Rather than waiting for the payment for assets such as loans, leases or receivables, a company can monetize those assets, prudently using funds or even allowing for more room for new assets.
  - The ABS market can also help investors acquire access to cheaper funding in some instances.
  - Through issuing in the structured market, the loans have the potential to be distributed to a broader audience, which can create better demand for the securities.
    - Securities can possess a senior/subordinated structure to appeal to a wide array of investors.
    - The securities are not subject to the creditworthiness of the issuer because the securities are bought and sold to the SPV who then issues the securities.
      - Thus if the original issuer defaults, the ABS securities are unaffected.
      - Most ABS carry investment grade ratings.

Source: Wells Fargo Securities

Examples, valuations, transactions, and credit monitoring of structured pooled securities.

Asset-Backed Securities

- The Carmax deal below is an example of the typical structure in an ABS deal backed by amortizing cashflows.
  - The structure of the deal below represents a typical ABS deal.
  - The first tranche (A1) has the shortest average life and Tier 1 short-term ratings, rather than long-term ratings.
  - The remaining tranches lengthen in regards to weighted average life.
  - The first four tranches have the highest credit ratings and are supported by the tranches under them.

Ticker: CARMX
Series: 2013-3

Class	Amount ($MM)	Ratings	WAL (years)	Principal Window (months)
A1	178.0	A-1+/F1+	0.30	1-6
A2	321.0	AAA/AAA	1.10	6-20
A3	308.0	AAA/AAA	2.45	20-39
A4	128.5	AAA/AAA	3.72	39-48
B	24.5	AA/AA	4.02	48-48
C	22.0	A/A	4.02	48-48
D	18.0	BBB/BBB	4.02	48-48

Source: Wells Fargo Securities

Credit Enhancement

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Types of Credit Enhancement

Excess Spread	Finance charge collections less bond coupons and deal costs.
Cash Reserve Account	Established by the issuer to provide extra internal liquidity for the ABS investors.
Over Collateralization	The amount of collateral in excess of bonds issued, can be thought of as the sponsor's equity in the deal.
Subordination	Lower-rated bonds that provide support for those above.

Source: Wells Fargo Securities

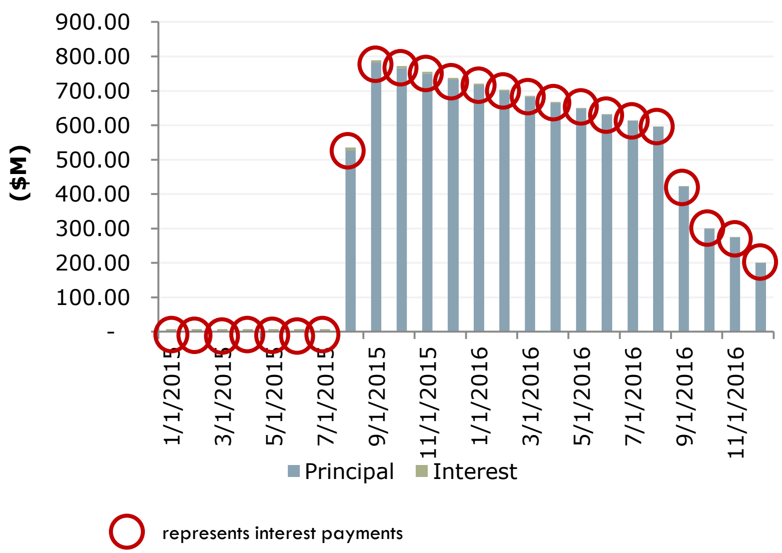
Security Comparison

- The two charts below show the potential difference in principal and interest received for an amortizing ABS versus a bullet security.

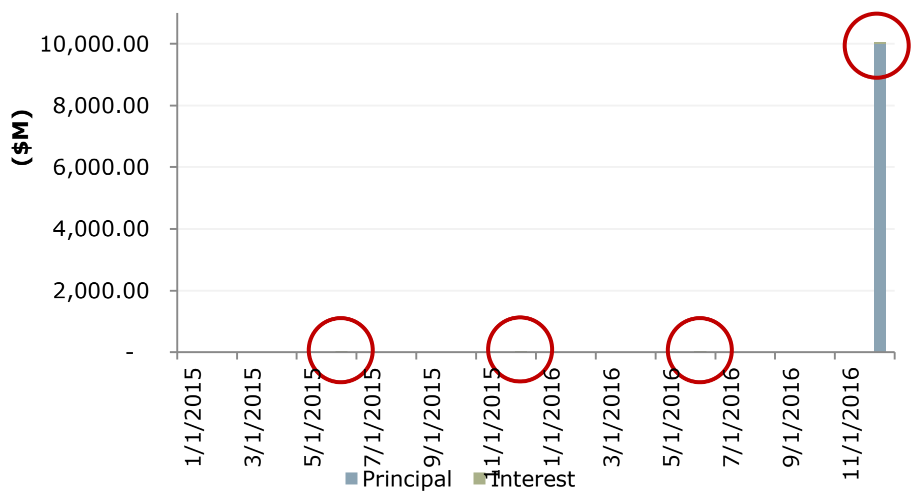
ABS vs Bullet Cashflow

- As you can see from the charts below, an investor can expect to receive both principal and interest monthly over the life of the amortizing investment, versus interest semi-annually and principal at maturity for the bullet investment.
- There are pros and cons to each structure, depending upon the investors cashflow needs.

Amortizing Security CFs



Bullet Security CFs



Source: Wells Fargo Securities

Prepayment

- Like mortgages, prepayment rates can play an important role in the average life, expected maturity and valuation of consumer ABS.
- Unlike mortgages however, prepayment rates on many consumer ABS tend to be less sensitive to interest rate changes that otherwise could create refinance opportunities.
- Prepayments for consumer ABS may be generated more by credit trends (default rates) or other economic conditions affecting consumer behavior (ie. auto sales, job and income growth, etc.).

  - **Constant prepayment rate –** used in many asset classes, including student loans, equipment loans and leases, and timeshare loans. This rate measures prepayments as a percentage of the current outstanding loan balance.
  - **Absolute prepayment rate –** calculates prepayments as a percent of the original dollar balance of the collateral pool. It is the prepayment convention for auto ABS transactions.
  - **Prospectus prepayment curve –** prepayment vector established for pricing an individual deal. It may be reported as a percentage of the baseline curve. (100 PPC)

Source: Wells Fargo Securities

ABS Rating Transition

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- There were just over 3 percent of ABS originally rated below investment grade, according to the Standard and Poor's study below from 1983 – 2013.

U.S. ABS Rating Transitions: 1983 - 2013

No. of Ratings	Original Rating	Current/Last Rating										Upgrade / Stable	Downgrade
		AAA	AA	A	BBB	BB	B	CCC	CC	C	Default		
5,274	AAA	**82.8**	8.1	3.6	2.3	1.1	0.7	0.6	0.4	0.0	0.2	82.8	17.2
1,760	AA	8.1	**68.8**	14.7	1.5	1.0	0.7	2.0	0.6	0.0	2.7	76.9	23.1
3,838	A	10.2	12.8	**65.8**	5.0	0.7	0.9	0.7	0.4	0.0	3.5	88.8	11.2
1,792	BBB	8.0	8.3	5.1	**60.9**	2.4	4.0	2.5	0.8	0.0	8.1	82.3	17.7
462	BB	2.4	6.9	8.9	4.3	**60.4**	1.1	1.1	1.3	0.0	13.6	82.9	17.1
41	B	0.0	0.0	4.9	4.9	2.4	**53.7**	2.4	4.9	0.0	26.8	65.9	34.1

- Figures in the table above represent percentages

Source: Wells Fargo Securities, Standard and Poor's

Asset-Backed Securities

- A prospectus is a useful document to find important information about the details of the deal:
  - The first page on the prospectus will list basic details of the tranches of the deal. This information will include the deal name, the tranche name, the par amount, the interest rate and principal window.

PROSPECTUS SUPPLEMENT
(To Prospectus dated February 9, 2015)

$1,000,000,000
CarMax Auto Owner Trust 2015-1
Issuing Entity or Trust

	Initial Principal Amount	Interest Rate	Final Scheduled Distribution Date
Class A-1 Asset-backed Notes	$191,000,000	0.24000%	March 15, 2016
Class A-2 Asset-backed Notes	$320,000,000	0.88%	March 15, 2018
Class A-3 Asset-backed Notes	$319,000,000	1.38%	November 15, 2019
Class A-4 Asset-backed Notes	$115,000,000	1.83%	July 15, 2020
Class B Asset-backed Notes	$ 22,500,000	2.17%	October 15, 2020
Class C Asset-backed Notes	$ 18,500,000	2.46%	December 15, 2020
Class D Asset-backed Notes	$ 14,000,000	3.15%	September 15, 2021

  - Other useful information in the prospectus includes, but is not limited to:
    - The transaction overview
    - Information on the sponsor and the SPV
    - Principal and interest payments
    - Credit enhancement
    - Explanation of risk factors, etc.

Source: Wells Fargo Securities

Measuring Performance

- A remittance report is a document that outlines important information that is helpful to determine performance of a specific asset-backed security.
- Some of the items included in a remittance report are listed below:
  - Transaction level details such as CUSIP, transaction name, security class name
  - Relevant dates such as distribution/payment date, accrual beginning and end date, record date, determination date
  - Balance details such as original balance, balance prior to distribution and balance after distribution
  - Principal and interest (including accrued interest and any reset rate, if applicable)
  - Factors
  - Interest shortfall (if applicable, includes any non-supported interest shortfall separately)
  - Realized gain and loss
  - Negative amortization
  - Servicer advances
  - Penalties / Yield maintenance
  - Credit enhancement(s)/reserve(s)
  - Look-back period
  - Trustee information (name and contact)

Source: Wells Fargo Securities, SIFMA

Current Market

- Bank credit card and prime auto are typically the first sector purchases by new ABS investors.
- Some of the largest sectors in the ABS market as of the end of 2014 include:
  - Credit card receivables
  - Prime auto loans and leases
  - Subprime auto loans
  - FFELP student loans
- Historically, bank credit card and prime auto ABS have been the largest sectors as well as the most liquid.
- Bank credit card and prime auto ABS tend to be first sector purchases for investors new to ABS. These sectors are the lower-risk alternatives in the space.
- Student loan ABS is the largest sector outstanding due to large accumulated balances, slow prepayment rates and the rapid decline in the amount of bank credit card ABS outstanding in the post-crisis period.

Source: Wells Fargo Securities

Current Market

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- ABS spreads are wide relative to other asset classes.
- Spreads on ABS securities are currently trading wide relative to recent historical comparisons.

ABS (Spreads to SWAPS)

			Current	One Week Ago	Max	Min	12M Average
SubPrime Auto	1-year	AAA	60	49	60	30	41
	2-year	AAA	63	53	63	33	45
	3-year	AAA	70	62	70	42	54
	3-year	A	145	130	145	100	123
	3-year	BBB	190	180	190	130	166
Prime Auto	1-year	AAA	32	26	32	14	22
	2-year	AAA	35	29	35	17	24
	3-year	AAA	40	33	40	19	27
	3-year	A	85	75	85	62	72
	3-year	BBB	145	135	145	112	127
Credit Card - Fixed	1-year	AAA	29	25	29	11	19
	2-year	AAA	31	27	31	17	22
	3-year	AAA	35	30	35	22	26
	5-year	AAA	47	43	47	33	39
	7-year	AAA	56	51	56	42	47
	10-year	AAA	65	61	65	52	57
	5-year	A	75	70	75	55	65
	5-year	BBB	110	100	110	86	95
Credit Card - Float	1-year	AAA	30	25	30	13	20
	2-year	AAA	33	29	33	19	24
	3-year	AAA	38	34	38	23	30
	5-year	AAA	49	44	49	36	40
	7-year	AAA	57	52	57	44	48
	10-year	AAA	67	63	67	56	60
	5-year	A	78	75	78	55	67
	5-year	BBB	110	105	110	86	97

Source: Wells Fargo Securities, Data as of August 17, 2015

Asset-Backed Securities

Benefits

- ABS can satisfy a variety of investor needs:
  - ABS is purchased by investors across the spectrum including money-market funds, commercial banks, insurance companies, pension plans, money managers, hedge funds, private equity, etc.
- Diversification:
  - There are many sectors available as well as structures of bonds which can satisfy a wide range of investor appetite.
- Liquidity:
  - The market is very large and secondary trading is quite active.
- Quality investment
  - The majority of issued ABS is rated investment grade.
- Subject to prepayment risk:
  - Prepayment risk is less sensitive to interest rate changes than other structured products, such as MBS.

Considerations

- Interest rate risk:
  - Fluctuations in interest rates can cause movements in the price and subsequently, the bonds yield and return, if sold before maturity.
- Prepayment risk
  - It is possible for an investor to receive more than expected principal returned which can affect overall returns and maturity metrics.
- Inflation risk:
  - As inflation fluctuates, so will an investor's *real* return.

Source: Wells Fargo Securities

Legal code restrictions for the use of ABS, MBS and CMOs under Government Code section 53601(o) with regard to maturity, ratings and portfolio limits.

Guiding Principles

The local agency investment community view each aspect of California Code with three guiding tenants.

- Safety
  - AAA rated asset with strong structures and exceptional collateral visibility
- Liquidity
  - Large issue sizes and active secondary market, but less liquid than the corporate market
- Yield
  - Significant yield enhancement when compared to other AAA rated investments

California Code

Excerpt from California Code Section 53601 (O):

A mortgage passthrough security, collateralized mortgage obligation, mortgage-backed or other pay-through bond, equipment lease-backed certificate, consumer receivable passthrough certificate, or consumer receivable-backed bond of a maximum of five years' maturity. Securities eligible for investment under this subdivision shall be issued by an issuer having an "A" or higher rating for the issuer's debt as provided by an NRSRO and rated in a rating category of "AA" or its equivalent or better by an NRSRO. Purchase of securities authorized by this subdivision shall not exceed 20 percent of the agency's surplus moneys that may be invested pursuant to this section.

Issuer Comparison

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- Issuer must be "A" rated:
  - Look through the issuing trust to who services and/originates the collateral.
  - Outstanding corporate debt can be used to source issuer rating (US based entity).
  - Can use the Corporate Bond standards when looking for suitable issuers.

Issuer Rating	Stand and Poor's	Mooy's	Fitch	
Fannie Mae	AA+/S	Aaa/S	AAA/S	Complies
Federal Home Loan Mortgage Company	AA+/S	Aaa/S	AAA/S	Complies
Honda	A+/S	A1/S	NR	Complies
Volkswagon	A/S	A2/S	NR	Complies
JP Morgan	A/N	A3/S	A+/S	Complies- One rating on the cusp
Ford	BBB-/S	Baa3/S	BBB-/P	Unacceptable Ratings
CarMax	NR	NR	NR	No Ratings

Source: Bloomberg

Security Rating

- Code requires "AA" by at least one rating agency
  - "AA" equivalent
- Things to consider:
  - Government mortgage pools typically do not have a rating attached to the specific security
    - Can imply a rating, policy may explicitly call out certain ratings
  - Other government backed collateral may have a explicit ratings
    - Freddie Mac Series K bonds
  - ABS have a wide spectrum of ratings, but the underlying collateral/structure position should be examined for appropriateness, regardless of rating
    - Subordination
    - Collateral characteristics- subprime, esoteric, illiquid

Maturity Characteristics

- Final Maturity- Legal final redemption date of all funds.
- Projected Maturity- Many structures have projected maturity dates or expected maturity dates.
  - These are estimations and should not be used when judging if the investment is appropriate.
- Average life- Securities are commonly referenced and traded in the context of "years."
  - The average life of a security is not the same as years to maturity.
- Principal window- Projected timeline of principal payments

Restricted Investments

Structured products require significant due diligence on all aspects of the trade, including the structure. Specific Restrictions include

- Specific Restrictions include:
  - Interest only structures
  - Principal only structures
  - Inverse floaters
- 53601.6. (a): A local agency shall not invest any funds pursuant to this article or pursuant to Article 2 (commencing with Section 53630) in inverse floaters, range notes, or mortgage-derived, interest-only strips.
- (b): A local agency shall not invest any funds pursuant to this article or pursuant to Article 2 (commencing with Section 53630) in any security that could result in zero interest accrual if held to maturity. However, a local agency may hold prohibited instruments until their maturity dates. The limitation in this subdivision shall not apply to local agency investments in shares of beneficial interest issued by diversified management companies registered under the Investment Company Act of 1940 (15 U.S.C. Sec. 80a-1 et seq.) that are authorized for investment pursuant to subdivision (l) of Section 53601.

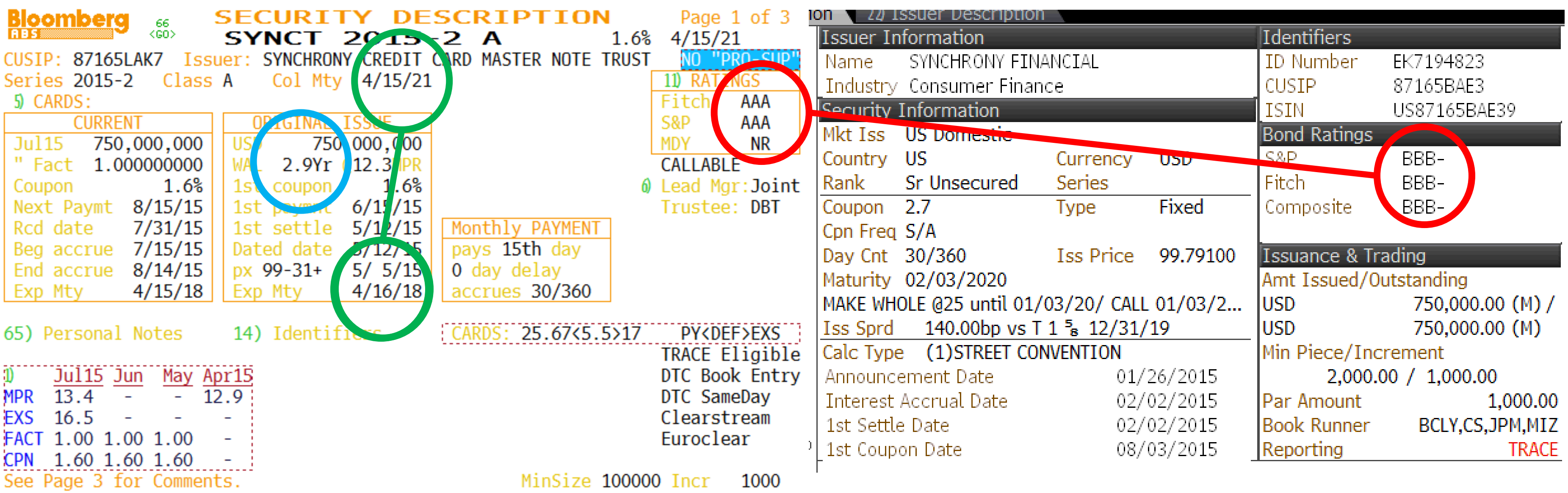
Other Considerations

- Code limits Asset Backed Security/Mortgage Backed Security/Collaterized Mortgage Obligations investments to a combined 20% concentration

- 144a format securities are common in these asset classes
- 144a securities are inconsistent with California Code
  - Refer to CDIAC Issue Brief http://www.treasurer.ca.gov/cdiac/issuebriefs/201307.pdf

Analysis required to determine if these pooled securities meet the investment objectives for local governments as stated in their investment plan and policies.

Analyzing a structured security for appropriateness



- Synchrony Financial is an issuer of charge cards for many major retailers
- Sold as a three year credit card ABS
  - Violations
    - Rating of underlying issuer, Synchrony is rated BBB-
    - Legal final maturity at time of purchase was over five years

Source: Bloomberg

High Level Trading and Valuation

The trading and evaluation of structured products is a PROCESS and should not be looked at in a single trade lens

Key Considerations

- Portfolio Strategy
- Risk Tolerance
- Portfolio Structure
- Liquidity Needs
- Asset Class Concentration
- Specific Security Characteristics
- Security Valuation

High Level Trading and Valuation

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- ABS Securities are traditionally sourced through the primary market (new issue) or from a broker/dealers inventory.
  - Brokers can work specific orders, but less frequent

- Valuation is more difficult to determine than Treasury/Agency/Corporate markets
  - Smaller deal sizes
  - Fewer investors participating
  - Less transparency
  - More complex structures

New ABS Deal Structure and Pricing

$1.25bn Toyota Auto Receivables 2015-B Owner Trust ($777.375 offered notes)

Jt-leads: Citi (str), BofAML, Credit Agricole

Co-Mgrs: BNP Paribas, Mizuho, Santander

Class*	Note Bal	Offer Amt	M/S	WAL	E.Final	L.Final	Bench	Px Guidance
A-2a\	$400.00	$360.000	Aaa/AAA	1.00	12/16	11/15/17	EDSF+	20-22
A-2b/			Aaa/AAA	1.00	12/16	11/15/17	1mL+	20-22
A-3	$360.00	$324.000	Aaa/AAA	2.10	05/18	05/15/19	ISWP+	22a
A-4	$103.75	$93.375	Aaa/AAA	3.23	12/18	9/15/20	ISWP+	28a

TICKER: TAOT 2015-B

REGISTRATION: SEC Registered

EXPECTED RATINGS: Moody's/S&P

PXG SPEED: 1.3% ABS 5% Call

EXPECTED SETTLE: 06/17/2015

MIN DENOMS: $1K x $1K

FIRST PAY: 07/15/2015

Determining Value and Best Fit

An investor must consider several internal and external variables when considering a trade

- Portfolio structure
- Relative value
  - Same/similar issuers
  - Different tranches
  - Different collateral
- Collateral composition
- Historical performance of issuer
- Interest rate forecast/curve positioning
- Comparable surrogate assets
  - Toyota corporate bond vs Toyota ABS

Post Trade Diligence

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Post trade collateral and performance monitoring is an essential part of investing in structured products

- Remittance reports
- Bloomberg aggregate data
- Specific industry monitoring
- Structure performance

TAOT 2012-B Collateral Group ALL collateral Source Loan Remit
Table Graph Zoom 100%

Remittance Data	7/2015	6/2015	5/2015	4/2015	3/2015	2/2015
Reserve- Beginning (M)	2,500	2,500	2,500	2,500	2,500	2,500
Reserve- Target (M)	2,500	2,500	2,500	2,500	2,500	2,500
Reserve- Current (M)	2,500	2,500	2,500	2,500	2,500	2,500
Yield Supp OC (M)	1,862	2,141	2,430	2,759	3,130	3,511
OC - Target (M)	8,500	8,500	8,500	8,500	8,500	8,500
OC - Current (M)	8,500	8,500	8,500	8,500	8,500	8,500
Delinq 30 days %	1.31	1.20	1.14	0.97	1.04	1.08
Delinq 60 days %	0.15	0.30	0.13	0.18	0.15	0.20
Delinq 90+ %	0.09	0.05	0.07	0.04	0.06	0.14
Liquidated Balance (M)	47	94	67	98	221	137
Recoveries (M)	69	116	87	103	47	105
Liq Proceeds (M)	0.88	19	2	18	25	12
Current Net Loss (M)	-23	-40	18	-23	149	20
Cumulative Loss (M)	2,438	2,461	2,501	2,519	2,542	2,393
Cumulative Loss %	0.24	0.24	0.24	0.24	0.25	0.23
MDR (1m)	0.03	0.06	0.04	0.05	0.11	0.06
CDR (1m)	0.34	0.64	0.42	0.56	1.17	0.67
SEV (1m)	-49.85	-42.34	26.99	-23.68	67.57	14.57

Source: Bloomberg

Types of risks associated with structured pooled securities

Risks of MBS/ABS/CMO Investments

- Duration Risk
- Liquidity Risk
- Credit
- Spread Risk
- Extension/Prepayment Risk
- Servicer/Sponsor Risk

Duration Risk

- Duration is a measure of interest rate sensitivity
- Example: If an investment has a duration of 5, for every 1% increase(decrease) in interest rates, the price of a security will fall(rise) by approximately 5%
- Total Return vs. Yield-Based investment mandates
- MBS 30yr duration higher than MBS 15yr
- Hybrid ARM tranches
- CMO structures designed to lower duration risk
- Floating vs. Fixed
- Auto ABS – A1 tranche lowest duration, each subsequent tranche higher duration

Liquidity Risk

- Liquidity: The ability to transact quickly without exerting a material effect on prices
- Bid-offer spread
- Regulations (Dodd-Frank, Basel III) have had negative effects on liquidity for all fixed income securities
- Agency MBS still very liquid (TBA vs. Specified Pools)
- Electronic Trading (TradeWeb, Market Axxess, Bloomberg)

Most liquid ⟷ Least Liquid

Agency MBS | Credit Card ABS | Auto ABS | Equipment ABS | Student Loan ABS | CMO | Esoteric ABS

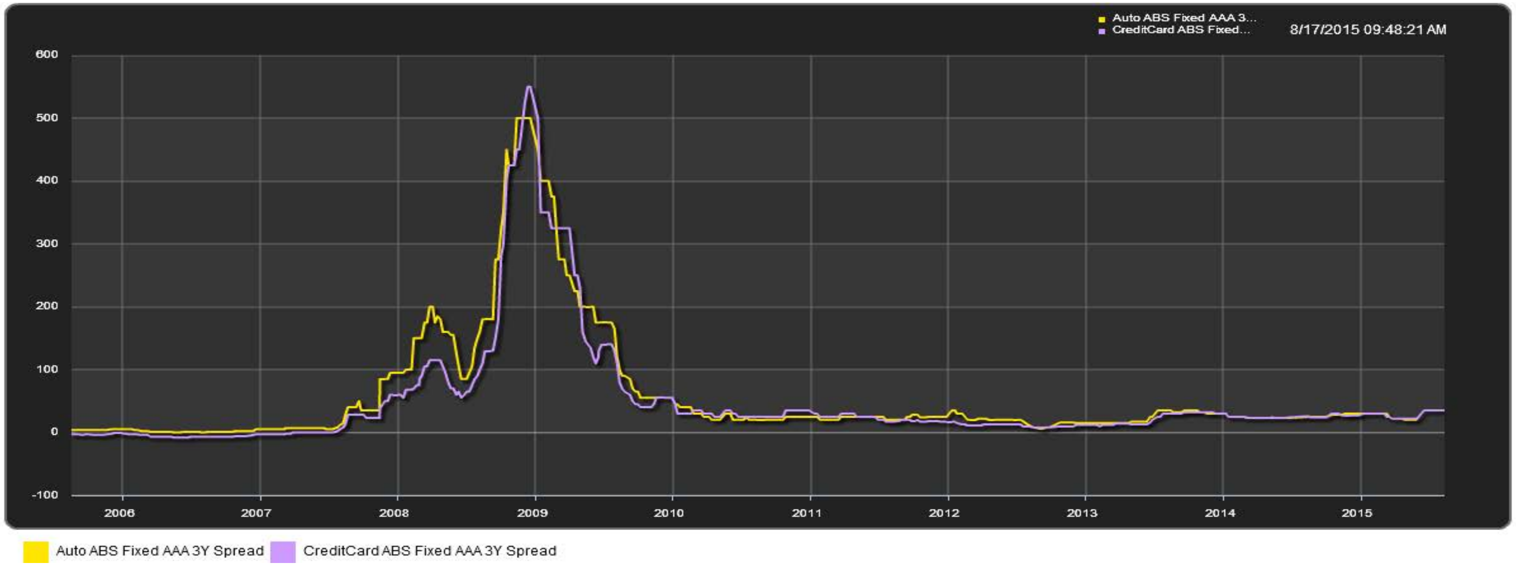
Credit Risk

- The risk of loss of principal
- Exposure to 100's to 1,000's of borrowers instead of one corporate entity
- Agency MBS guaranteed by GSE's (FNMA, FHLMC, GNMA)
- Student Loan ABS
- Senior/subordinate structure of many ABS types provide security to senior bondholders
- Reserve Accounts, Yield Supplement, Early Amortization and Receivables Discounting also provide protection
- Collateral Characteristics
  - FICO Scores
  - New vs. Used Vehicles (Auto ABS)
  - Geographical concentration of borrowers

Spread Risk

- MBS/ABS/CMO all trade at a spread to some benchmark
- OAS, G spread, Z spread
- Total Return vs. Yield Based investment
- Supply/Demand, Ratings Downgrades, Market environment all affect spreads.

3 year Auto and Credit Card ABS spreads



Source: Bloomberg

Extension/Prepayment Risk

- Risk that the timing of cash flows is earlier or later than expected upon purchasing security
- Borrowers may pay more than their required monthly payments or prepay a loan entirely
- Pool securities may pay slower than prepay assumptions
- Affects Yield and Total Return
- MBS – CPR, PSA speeds
  - High coupon vs low coupon
  - FICO score
  - LTV
  - Geography (fast prepay states vs. slow prepay states),
  - Loan size
- CMO – designed to mitigate these risks
- ABS
  - Auto - ABS speed
    - Fairly stable prepays
    - Clean up call A4 tranche
  - Credit Card
    - Legal versus Final Maturity

Servicer/Sponsor Risk

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- Servicer may not survive the full life of the securitization
  - Servicer tracks outstanding receivables, collects payments from borrowers, communicates with borrowers about their accounts, may advance payments to investors even in the case of cash shortfall.
  - Backup servicer
- Sponsor of underlying program/trust may go bankrupt
  - Banks, retail stores, auto manufacturers
  - Can lead to adverse pool performance as new receivables stop coming into the pool and less creditworthy borrowers become larger portion of pool
  - Receivables are bankruptcy-remote from underlying servicer-seller
  - Losses on A tranches rare even during bankruptcy of sponsor (GM)
- Monitor total exposure to an issuer (Corporate, ABS)
  - Ex: Toyota Motor Credit and TAOT

City of San Diego Securitized Investments

- Primary Investment Objectives
- California Government Code
  - 5yr final maturity
  - 20% of portfolio limitation
- Investment Policy
  - "A" rating requirement
  - 5% total issuer exposure (CP, MTN, ABS)
- Total Return Portfolio
  - Duration
  - Spread widening
- Cash Flows
  - Cash flow certainty

City of San Diego Securitized Investments

- Auto Loan ABS
  - Buy primarily new issues
  - Par/Discount to Par pricing
  - Money market or A2 tranche
    - Short WAL
    - Treasury surrogates in front end
  - Underlying sponsor “A” ratings
- Credit Card ABS
  - Underlying sponsor “A” ratings
  - Only 1 current issuer qualifies (Chase Issuance Trust)
  - Maximum Legal Final < 5 years
    - Expected final 2 or 3 years
  - Bank sponsor
    - Large, benchmark issues
    - Currently not buying Retail cards

Ongoing Monitoring

- Auto ABS
  - Monthly Periodic Reports
    - 30, 60, 90, cumulative losses
    - Credit Enhancement
    - Compare vs. other issues (same & different sponsors)
    - Available on Bloomberg
- Credit Card ABS
    - Excess Spread
    - Delinquencies/Chargeoffs
    - Payment Rate
    - Available by issuer on Web, Broker Research reports
    - Macro – Personal Bankruptcies, Credit Growth

MBS/ABS Paydowns

- Original face vs. Current face
- Factors
- Accounting system handling of paydowns
- Final paydowns
  - Timing
  - Residual balances

Resources

- There are a variety of sources in which to obtain information for analysis, including:
  - SEC filings
  - Press releases
  - Credit research reports
  - Bloomberg
  - News publications, ie. Wall Street Journal, Financial Times, Reuters
  - Management presentations
  - Investor/analyst meetings

Source: Wells Fargo Securities

Key Terms

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- Excess Spread - Net amount of interest payments from the underlying assets after bondholders and expenses are paid and after all losses are covered. Excess spread may be paid into a reserve account and used as a partial credit enhancement or it may be released to the seller or the originator of the assets
- Expected Maturity Date – The date on which principal is projected to be paid to investors. It is based on assumptions about collateral performance.
- Final Maturity Date – The date on which the principal must be paid to investors, which is later than the expected maturity date. Also called the legal maturity date.
- Grantor Trust – A legal structure under which most pass-throughs are issued..
- Overcollateralization – A type of credit enhancement in which the principal amount of collateral used to secure a given transaction exceeds the principal of the securities issued.
- Owner Trust – An amortizing structure that permits significant cashflow engineering, which his generally prohibited with grantor trusts. Owner trusts are often used with auto loans, equipment leases and student loans.
- Ramp – A concept often used with HELs and manufactured-housing transactions to describe a series of increasing monthly prepayment speeds, prior to a plateau, on which the expected average life of a security is based.
- Revolving Trust – A securitization structure frequently used for assets with high turnover rates, such as credit card, trade and dealer floor-plan receivables. It is characterized by having a revolving period and an accumulation (or controlled – amortization) period.
- Seasoning– The age of accounts. In the ABS market, this term refers to the fact that various asset types have different seasoning patterns, which are characterized by periods of rising and then declining losses.

Source: Wells Fargo Securities, SIFMA

Key Terms

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- Special Purpose Vehicle - A bankruptcy-remote entity set up to insulate the issuer of ABS (the trust) from the sponsor, or originator, of the assets. Also called special-purpose corporation (SPC)
- Surety Bond – A bond that backs the performance of another. In the ABS market, a surety boned is an insurance policy typically provided by a rated and regulated monoline insurance company to guarantee securities holders against default.
- Tranche – One class of a securities issue which shares the same characteristics. Tranche is the French word for “slice”.
- True Sale – An actual sale, as distinct from a secured borrowing, which means that assets transferred to an SPV are not expected to be consolidated with those of the sponsor in the event of the sponsor’s bankruptcy. Rating agencies usually require what is called a true-sale opinion from a law firm before the securities can receive a rating higher than that of the sponsor.

Source: Wells Fargo Securities, SIFMA

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