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EQUITY RESEARCH

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The Future of Finance PART 1

The rise of the new **Shadow Bank**

From Lending Club to Quicken Loans, Kabbage to CommonBond, new faces and new names are impacting the way we bank and borrow. The twin forces of regulation and technology are opening the door for an expanding class of competitors to capture profit pools long controlled by banks. In the first of a new series on the evolution of the financial industry, we focus on the new entrants into lending and where these new shadow banks are likely to gain the strongest foothold.

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PM summary: The coming of the “new” Shadow Bank

Regulatory changes and new technologies are re-shaping competition in traditional bank activities as well as the payments ecosystem. We expect the competitive landscape to shift over the next 5-10 years, with new entrants emerging and some activities moving out of the banking system. Within this report – our first in a series – we focus on the emergence of “Shadow Banking” (broadly defined as lending activities conducted outside the banking system) across several key asset classes and the potential profit pools that could be captured by disruptors. Our key takeaways:

- Regulation will continue to shift activities from banks to non-banks:** New regulations are playing a key role in the evolution of competition as 1) stricter capital requirements have led to reduced credit availability in some lending areas, 2) scrutiny around high risk lending has led banks to pull back from some commercial activities such as loans to non-investment grade companies (aka leveraged lending), and 3) changes in the consumer market have led to an upward re-pricing of credit, providing an opening for alternative players. This is leading to the **emergence of a class of shadow banks** - companies like Lending Club and CommonBond have formed, while traditional borrowers like Blackstone and other asset managers/private equity firms are now becoming lenders.
- Technology– an enabler to entry:** The combination of big data analytics and new distribution channels allowed technology start-ups to disrupt traditional banks, particularly in the consumer lending space. These new entrants benefit from lower cost bases than banks, allowing them to price loans at lower interest rates. Though trends are still in their infancy, the total addressable market is large and share is shifting rapidly. New technology is also expanding the pie in markets that were historically underserved by banks.
- \$11bn annual profit at risk to leave the banking system:** We see the largest risk of disintermediation by non-traditional players in: 1) consumer lending, 2) small business lending, 3) leveraged lending (i.e., loans to non-investment grade businesses), 4) mortgage banking (both origination and servicing), 5) commercial real estate and 6) student lending. **In all, banks earned ~\$150bn in 2014, and we estimate \$11bn+ (7%) of annual profit could be at risk from non-bank disintermediation over the next 5+ years.**
- Assessing the reaction of incumbents and sustainability:** Emerging players will force the incumbents to change competitive behavior. For instance, we would expect pricing of products to adjust, driving potentially lower returns. Second, some could be forced to acquire, which would likely cannibalize the existing business. This opens the debate whether you are better to cannibalize yourself at the expense of your current business model or remain under attack. Lastly, incumbents could pursue new regulations that “level the playing field.” Indeed, the regulatory outlook for non-bank financial companies has been top of mind in Washington, particularly as emerging players become large.

Exhibit 1: Profit pools at risk

Type	Total market size	Market size type	% inside banking system	Amount in banking system	% in banking system at risk of leaving	Amount at banks at risk of leaving	Total banking profit pool at risk	Select disruptors / new entrants	Competitive advantage?
Unsecured personal lending	\$843bn	Loans O/S	81%	\$683bn	31%	\$209bn	\$4.6bn	Lending Club, Prosper	Lower capital requirement, technology
Small business loans	\$186bn	Loans O/S	95%	\$177bn	100%	\$177bn	\$1.6bn	OnDeck, Kabbage	Technology (drives time, convenience)
Leveraged lending	\$832bn	Loans O/S	7%	\$57bn	34%	\$19bn	\$0.9bn	Alternative AM, BDCs	Regulatory
Student lending	\$1,222bn	Loans O/S	5%	\$65bn	100%	\$65bn	\$0.7bn	SoFi, Earnest, CommonBond	Regulatory, technology, convenience
Mortgage origination	\$1,169bn	Ann1 volume	58%	\$678bn	100%	\$678bn	\$2.1bn	Quicken, PFSI, Freedom	Regulatory, convenience
Mortgage servicing	\$6,589bn	Loans O/S	73%	\$4,810bn	6%	\$300bn	\$0.1bn	OCN, NSM, WAC	Regulatory, cost
CRE lending	\$2,354bn	Loans O/S	56%	\$1,322bn	9%	\$118bn	\$0.8bn	Comm. mREITs, alt. lenders	Regulatory, market dislocation
Total	\$13,195bn		59%	\$7,792bn	20%	\$1,566bn	\$10.9bn		

Source: Goldman Sachs Global Investment Research estimates.

A Shifting Landscape in Numbers

PEER-TO-PEER LENDING GROWTH

\$26_{MN}  **\$1.7_{BN}**

Peer-to-peer (P2P) loan issuance on the two largest platforms, Lending Club, and Prosper, grew more than 65X from 2009 to 2014. (Page 14)

PERSONAL LOANS = WIDE MARGINS

>20%

Banks earn **ROEs on personal loans** similar to that of credit cards even when credit card loans are refinanced because of lower opex and smaller losses that offset the lower rates. (Page 20)

MORTGAGE SHIFT

Non-banks' share of mortgage originations jumped to a record 42% in 2014 from 10% in 2009 and their prior peak of 31% in 2004. (Page 53)



STUDENT LOANS

\$700_{BN}  **\$1.2_{TN}**

Total student loans outstanding have grown 70% since 2008, largely via the government's one-size-fits-all Direct Loan program. Niche competitors see an opening to refinance loans. (Page 43)

FROM BANK CLIENTS TO COMPETITORS



Direct lending by alternative asset managers is growing and now comprises up to 12% of private equity credit fund AUM. (Page 36)

\$30bn+

SMALL BUSINESS LOAN APPROVALS

Alternative lenders approved 62%
62% of small business loan requests in January 2015. This compares to big banks, which approved just 21%. (Page 31)

BANKS STEPPING BACK

-15%

Bank of America's total **mortgage servicing unpaid principal balance** dropped to \$693 billion in 4Q 2014 from \$811 billion in 4Q 2013. (Page 54)

TOTAL SHADOW BANKING LOANS

\$4 trillion

Across the six key lending segments we analyze (personal and small business, leveraged lending, commercial real estate, mortgage and student), we estimate there are with \$12 trillion loans across banks and non-banks, with 59%/41% split of banks / non-banks. (Page 3)

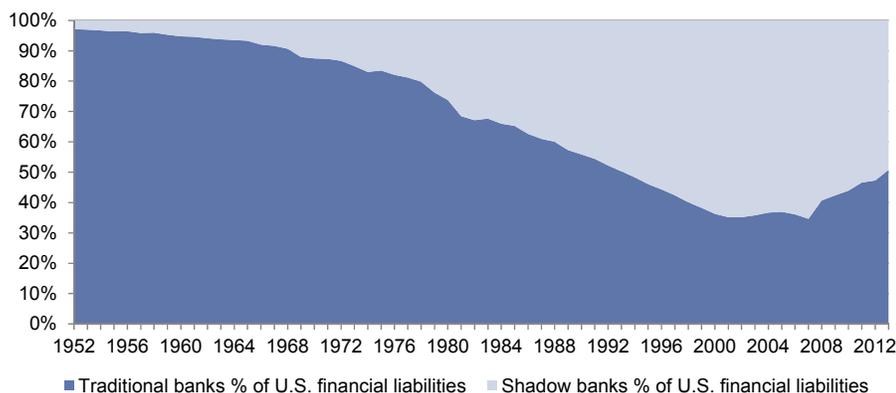
A brief history of shadow banking in the U.S.

While Shadow Banking is a broad term, we define it as “activities – primarily lending – conducted by non-bank financial intermediaries that provide services similar to traditional banks.” In general, these institutions are not today subject to the same regulatory oversight as traditional banks, **providing a temporary arbitrage opportunity for non-banks.** Though large portions of the broader shadow banking sector (inclusive of mortgage backed securities and other structured credit) have contracted since the recession, new forms of shadow banking have emerged and older ones have rebounded as a direct result of regulatory changes for banks, particularly 1) the Dodd-Frank Wall Street Reform and Consumer Protection Act, the financial regulatory reform bill passed in Congress in 2010 after the financial crisis, and 2) evolving bank capital standards (aka Basel III). These regulatory changes have lowered returns on equity for certain products, causing banks to raise prices or shrink various businesses, thereby creating an opportunity for new entrants.

Origins of the term ‘shadow banking’ are rooted in the financial crisis

The term ‘shadow banking’ was coined in 2007 by PIMCO’s former chief economist Paul McCulley to refer to the “the whole alphabet soup of levered up non-bank investment conduits, vehicles, and structures” that contributed to the lending boom from 2005-2007. These highly levered investment vehicles were reliant on wholesale short-term funding (such as commercial paper) and did not have the stability of banks’ FDIC insured deposits or the backstop of the Fed’s discount window, and thus were vulnerable to runs when bond market liquidity dried up. Though many of these vehicles were tied to or created by banks, they generally operated outside of Fed regulation. Thus, shadow banking has typically been a term used to criticize the systemic risks created by non-bank entities.

Exhibit 2: The role of the broader shadow banking system has declined as a % of the U.S. financial system since the financial crisis, but it is still significantly larger than history
% of U.S. financial liabilities

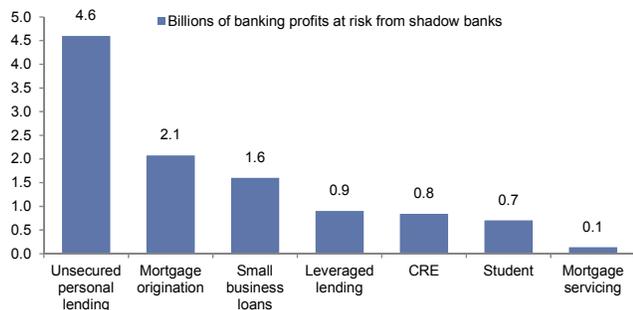


Source: Federal Reserve, Goldman Sachs Global Investment Research

Sizing the shadow bank market and bank profit pools at risk

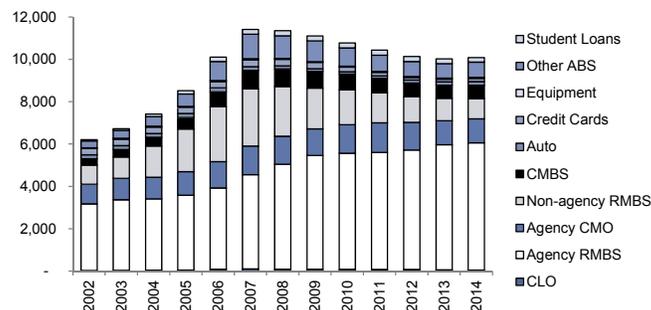
In 2013, the Federal Reserve estimated **gross shadow banking liabilities in the U.S. (their measure of non-bank credit intermediation) at roughly \$15 trillion**, down 30% from a peak of \$22 trillion in 2007 (vs. bank liabilities growing from \$14 trillion to \$16 trillion over the same period). The contraction of shadow banking liabilities is not surprising considering that the Fed’s broad definition includes all structured credit (including asset backed securities now consolidated on bank balances following accounting rule changes), as well as commercial paper, repo and money market mutual funds. Additionally, during the financial crisis, several of the largest non-banks (particularly the investment banks) converted to Fed-regulated bank holding companies, further reducing the shadow bank universe.

Exhibit 3: We estimate \$11bn of banking profit could shift to non-banks



Source: Federal Reserve, Goldman Sachs Global Investment Research.

Exhibit 4: The broader measure of shadow banks has declined partly due to a 9% contraction in structured credit (\$bn)



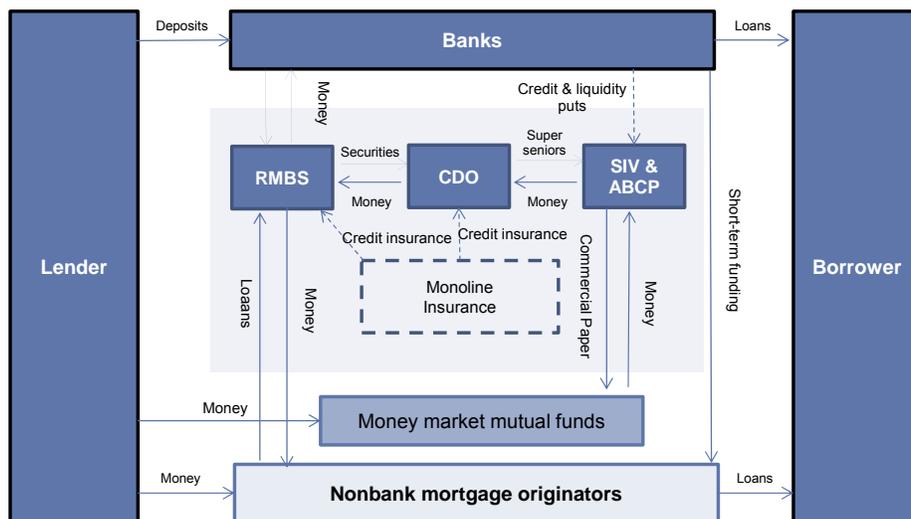
Source: S&P, SIFMA, Goldman Sachs Global Investment Research.

Our analysis of shadow banking takes a narrower approach to the market focused on consumer/commercial lending and mortgage servicing or **what we refer to as “the new shadow bank.”** Across six key lending segments with \$12 trillion loans across banks and non-banks, we estimate that 59% were held on bank balance sheets (or serviced by banks in the case of mortgages), while non-banks held 41%. This compares to the Fed’s measure of \$15 trillion shadow bank liabilities with 52% inside the banking system. Across these segments, we estimate that banks could lose roughly \$11bn of profit to non-banks.

The 'new' shadow bank

In this report, we focus on a **new class of shadow banks** that are emerging – new entrants such as Lending Club, Prosper, Kabbage that are changing the face of traditional activities, while other players who were historically users of credit – **private equity firms in particular are “leveraging” new regulations to play a bigger role in lending**, a trend we expect to continue. These 'new' shadow banks are standalone businesses, including peer-to-peer lenders, BDCs and commercial mortgage REITs, among others, that have several advantages (including some temporary) vs. traditional players. We also focus on the growth of non-bank mortgage originators and non-banks in leveraged lending (such as private equity funds), which have always played a role as credit intermediators, but have grown significantly over the past few years.

Exhibit 5: Illustration of the pre-crisis shadow banking system for residential mortgages



Source: IMF, Goldman Sachs Global Investment Research

Factors leading to a rise in non-bank lending

1) Regulatory arbitrage: In Exhibit 6, we provide a brief summary of the regulatory changes impacting key banking activities. Most of these regulations came into effect during 2010-2013, and we have yet to see the full ramifications. The consistent theme in each of these regulations is that 1) they have made the “cost of doing business” more expensive for regulated banks and caused many to exit or downsize lines of business and 2) products were forced to “re-price” due to new rules and led to the emergence of new players at lower prices. Interestingly, the new entrants are not subject to most of these regulations, putting them at an advantage vs. the traditional players. Later in the report, we provide additional context on each of these asset classes and the regulations. **However, it remains uncertain how long these arbitrages will exist as we expect regulators to opine as some point.**

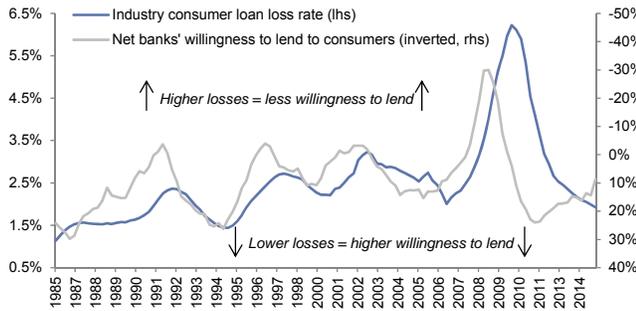
Exhibit 6: Regulatory changes are driving activities out of the banking system

Product	Regulation	Who does it impact?	Who does it create opportunity for?
Personal Lending	Stricter capital requirements for consumer loans, CARD Act	Banks have to hold more capital diluting returns Raised credit card interest rates	Non-banks (LC) can circumvent higher capital requirements and price below banks
Small Business Lending	Regulatory focus on concentration and pricing, Fed stress test (CCAR)	Regulated banks are unable to adequately price risk in lower credit loans	Non-banks (ONDK) can charge higher rates on higher risk loans
Leverage Lending	OCC Guidance, CCAR, "Skin in the Game" rules for securitizers	Regulated banks are unable to participate in riskier deals	Non-banks (PE, BDCs, foreign banks) to take riskier deal fees
Commercial Real Estate Lending	Basel III risk weighting, CCAR losses	Banks have to hold more capital diluting returns	Transitional and mezzanine lenders can engage in more complex deals
Mortgage Banking (origination and servicing)	Basel III, Qualified Mortgage rules for underwriting, "Skin in the Game" rules for securitizers, Home Mortgage Disclosure Act	Banks have been selling MSRs and cutting back on mortgage originations.	Non-banks' mkt share of originations has doubled and has reached an all-time high of 42%; Specialty mortgage servicers (OCN, NSM, WAC) have also grown rapidly.
Student Lending	Increased oversight by CFPB, elimination of FFEL loan program in 2010, potential for student loan bankruptcy reform	Larger banks (JPM, BAC, and C) have stopped originating student loans and are now divesting run-off portfolios.	NAVI has been acquiring run-off bank portfolios, and marketplace lenders (SoFi, CommonBond) biz model is focused on refinancing student loans at lower rates

Source: Goldman Sachs Global Investment Research

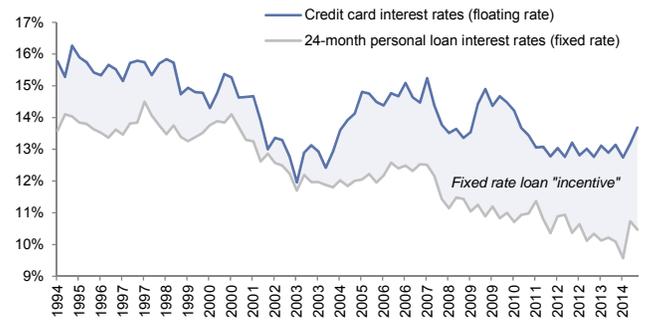
- 2) Technology lowers barriers to entry:** Big data analytics and the pervasive use of the internet for financial transactions have created opportunities for start-up tech companies to offer loans directly to consumers, offering a lower cost and occasionally more convenient alternative to banks (speed from less paper work/quicker decisions in some cases and the ability to apply for a loan at home).
- 3) Favorable macro environment:** The combination of all-time low interest rates and historically low delinquencies for consumer loans has also contributed to credit creation, as investors search for higher yield assets and new entrants are more comfortable with the risk profile of borrowers.

Exhibit 7: Low losses have increased willingness to lend



Source: Federal Reserve, Goldman Sachs Global Investment Research.

Exhibit 8: Low interest rates have increased loan demand



Source: Federal Reserve, Goldman Sachs Global Investment Research.

10 things you didn't know about shadow banking

- 1) Across the six key lending segments (personal and small business, leveraged lending, CRE, mortgage and student) we estimate there are with **\$12 trillion loans** across banks and non-banks, with **59% held on bank balance sheets** (or serviced by banks in the case of mortgages) and **41% held by non-banks**. This compares to the Fed's broader measure of \$15 trillion shadow banking liabilities.
- 2) To facilitate the origination of loans and compliance with bank regulations, **many P2P lenders partner with little known WebBank**, for instance, a Salt Lake City, Utah based industrial bank. WebBank was founded in 1997, has about 38 full time employees, and in 2014 ranked in the 99th percentile for bank profitability per head (\$420k of net income/head).
- 3) While it took Prosper **8 years to reach the first \$1bn** loans issued via its P2P lending platform, it took just **six months to reach the second billion**.
- 4) The **average APR** on loans originated by small business lender **OnDeck was 51.2%** in 4Q14, while **7.3% of OnDeck's loans** outstanding were **15+ days delinquent** in 4Q14.
- 5) After declining to just 10% of total mortgage origination volume in 2009 from 31% in 2004, **non-banks' share of mortgage originations** has since rebounded to **a record 42% in 2014**, led by companies such as Quicken, PFSI, and Freedom Mortgage.
- 6) The **five largest banks** in the US (WFC, BAC, C, JPM, and MS) have collectively **incurred \$105bn of mortgage-related litigation expense**, leading them to shed non-core legacy mortgage assets and exit non-core businesses.
- 7) Non-bank mortgage servicers, such as OCN, NSM and WAC, have **tripled their market share to 27%**, as servicing on \$1.4 trillion (out of \$10 trillion U.S. mortgages) has changed hands in the past 3 years.
- 8) Federal student loans **previously charged a uniform rate of 6.8%** across all borrowers with no underwriting standards, which has allowed marketplace lenders such as SoFi and CommonBond to offer lower rates to refinance loans of higher credit quality borrowers.
- 9) Approximately **20% of leveraged loans issued in 2014 had debt to EBITDA of 6x+**, the level at which US regulators intensify their scrutiny. This has led to ~5% of leveraged loans being financed by non-banks, the highest level on record.
- 10) The **top commercial mortgage REITs have nearly doubled in size to \$33bn since 2011**, as banks have pulled back from some riskier pockets of commercial real estate lending due to regulation.

Six key areas for non-bank growth

- 1) **Personal lending – at risk for share shifts:** We see significant risk of disruption as less regulatory burden and a slimmer cost structure (over time) drives pricing advantages for new players. Of the \$843bn of consumer loans outstanding, we see \$209bn “at risk” to move to new players over the longer-term. With less than 2% of the market today, we estimate new entrants could control up to 15% of the market over the next 10 years.

Emerging Disruptors: Lending Club and Prosper

- 2) **Small business lending – expanding the pie:** Small business lending is likely to see further disruption as technology (particularly ‘big data analytics’) and an expanding pie drives growth to alternative lenders. We see \$178bn of small business loans in the banking system that could be “at risk” of being disintermediated, with \$1.6bn of banking industry profits attached to those loans.

Emerging Disruptors: OnDeck and Kabbage

- 3) **Leveraged lending – more to move out:** Regulatory scrutiny will pressure banks away from higher risk deals, leaving room for newer players (private equity firms, BDCs, and unregulated brokers) to take share. While most of the \$832bn outstanding loans have already left US bank balance sheets, we see just under \$1bn of profits “at risk” to move to non-banks. Movement out of higher risk deals could result in a deterioration of credit terms in certain parts of the market.

New and growing players: Alternative asset managers

- 4) **Mortgage banking – fastest share shift:** Non-banks’ share of mortgage originations is poised for further growth, while their growth in mortgage servicing is likely to slow. In just three years, large non-banks’ share of mortgage originations has doubled to 42%, and we see another 5-8 pts of bank share at risk (\$179-286mn profit pool). In mortgage servicing, non-banks’ share has more than tripled to 27% with servicing on \$1.4 trillion (out of \$10 trillion U.S. mortgages) changing hands in the past 3 years, and we estimate that \$300bn more servicing could shift (\$137mn profit pool).

Emerging Upstarts: Quicken, Freedom Mortgage, PennyMac, Ocwen, and Nationstar

- 5) **CRE lending – niche opportunity for non-banks:** Non-banks are also poised to take advantage of a coming wave of CMBS maturities that might not be eligible for refinancing from banks or CMBS due to cash flow shortfalls. Overall, we estimate that \$800mn+ profits could shift from the banking system to non-banks over the next 5 years, and an additional \$350mn of profit could move to non-bank lenders from the CMBS maturity wave over 3-4 years.

New Players: Starwood Property, Colony Financial, and Blackstone

- 6) **Student loans – disintermediating Uncle Sam:** Student loans have grown faster than any other financial asset class since the recession, reaching \$1.2 trillion loans in 2014 (up from \$700bn in 2008). The Department of Education’s ‘one-size fits all’ programs account for nearly all the growth, creating an opportunity for tech startups (SoFi and others) to refinance higher quality borrowers’ government loans. Non-banks also have an opportunity to acquire banks’ run-off Federal loan portfolios (banks were cut in 2010). Overall, we estimate \$200mn of profit that could shift outside of the banking system over the next 3 years primarily.

Emerging Players: SoFi, CommonBond, Earnest

We provide this list solely as a representation of the emerging, new and existing players challenging the conventional business models. There are a host of other companies involved in each sector. This is a sample list only.

The sustainability of the 'new' shadow banks

Non-banks have always played a key role in providing credit to U.S. consumers and businesses. However, there are key questions as to whether the growth trends we have witnessed over the past few years are sustainable due to three primary factors:

1) Increased regulatory scrutiny as non-banks become too large: The Financial Stability Oversight Council (FSOC) was formed following the financial crisis to monitor systemic risk inside and outside of the banking system. We have seen instances of non-banks being designated as systemically important across several industries (insurance among others). Additionally, outside of systemic designation, we've also seen increased regulatory scrutiny of non-banks that have grown at a rapid pace, such as Ocwen Financial (OCN). Therefore, as the phrase goes, "if it looks and smells like a bank, it could get regulated like one."

2) Expansion into other asset classes: We believe there is sizable runway for growth across several products, particularly personal / small business lending and leveraged lending. However, we believe the marketplace or "non-bank" model will face challenges expanding into other asset classes – mortgage in particular, where profitability is higher, there is greater volatility and increased regulatory scrutiny.

3) Competitive response from incumbent banks: History tells us that banks will likely react to the emergence of new players in several manners. We believe we could see banks 1) reduce pricing to compete, 2) acquire or build similar platforms or 3) push for additional regulatory scrutiny leading to a "leveling" of the playing field.

A word on the regulatory environment for non-bank financials

Under the Dodd-Frank Act, the FSOC is required to supervise and regulate certain non-bank financial companies deemed to be systemic based on their size, interconnectedness, leverage, liquidity risk and maturity mismatch, lack of substitutes and existing regulation. These institutions are designated as non-bank systemically important financial institutions (non-bank SIFIs). The initial criteria for evaluation are: 1) Consolidated assets > \$50bn; 2) CDS outstanding > \$30bn; 3) Net derivatives liabilities > \$3.5bn; 4) Total debt outstanding > \$20bn; 5) Leverage ratio > 15:1; and 6) Short-term debt ratio > 10%.

If a company meets these thresholds, it is then subjected to further tests to evaluate whether it is systemic. MetLife, Prudential, AIG, and GE Capital have already been designated as non-bank SIFIs, and large asset managers are being evaluated as well, while others have undertaken spin-offs to limit the size and scope of their business (Sallie Mae / Navient) as proactive measures to avoid designation. Though it is unclear what non-bank SIFI designation will actually mean for these institutions, most investors expect increased scrutiny of capital levels, which could potentially limit share buybacks. **Additionally, though a non-bank might not qualify for SIFI designation, it still might be subject to greater scrutiny from a broad range of regulatory bodies (including the Consumer Financial Protection Bureau or state-level financial regulators) as it grows.** It is also worth noting that non-banks are subject to (like all lenders) the Truth in Lending Act (TILA) and other consumer protections.

The Federal Reserve has been particularly focused on shadow banking with Fed Governor Stanley Fischer commenting in December 2014: "I don't think we've solved the problems of how to deal with what's known as the shadow banking system," and Fed Gov. Tarullo has been very focused on risks posed by non-bank financials with large amounts of short-term wholesale funding, particularly tri-party repo, and has proposed several policy options to limit these risks.

Personal lending: Technology and regulation driving new entrants

Prosper facts: Prosper was founded in 2005 as the first U.S. peer-to-peer lender; Prosper remains private.

Lending Club facts: Lending Club was founded in 2006, is headquartered in San Francisco, CA and IPO'd in December 2014.

Personal lending (installment and card) is likely to continue to see disruption as the benefits of a lesser regulatory burden, lower capital requirements and a slimmer cost structure (over time) drive pricing advantages for new players (Lending Club, Prosper and others), leading to share moving away from traditional players. Of the \$843bn of consumer loans outstanding, we see \$209bn "at risk" to move to new players over the longer-term. Based on this, from less than 2% of the market today, we estimate new entrants could control close to 15% of the market the next 5-10 years. That said, banks are already adapting business models to the competitive and changing environment, which could slow or limit share gains.

Exhibit 9: We see \$209bn of loans and \$4.6bn of profits at risk of leaving banks

Type	Total market size	Market size type	% inside banking system	Amount in banking system	% in banking system at risk of leaving	Amount at risk of leaving	Total banking profit pool at risk	Select disruptors / new entrants	Competitive advantage?
Unsecured personal lending	\$843bn	Loans O/S	81%	\$683bn	31%	\$209bn	\$4.6bn	Lending Club, Prosper	Lower capital requirement, technology
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Total	\$13,195bn		59%	\$7,792bn	20%	\$1,566bn	\$10.9bn		

Source: Goldman Sachs Global Investment Research estimates.

Unsecured loan: A loan that is issued and supported only by a borrower's creditworthiness, rather than by a type of collateral (house, card, assets).

Personal loans are loans to individuals that are unsecured (i.e., no collateral pledged) and are used for financing things other than education (i.e., not student loans), and are not in the form of revolving debt (like a credit card loan). Personal loans are typically advanced based on a borrower's credit-history and ability to repay from his/her personal income; repayment is usually through a fixed installment amount over a fixed term. Borrowers use personal loans for personal purposes (medical expenses), family needs (vacation), or household purposes (home extension, repair). In addition, an increasing common use of personal loans is to consolidate debt, usually multiple credit cards into one lower monthly payment that will be paid down over time. See Exhibit 10 for an overview of debt consolidation.

Exhibit 10: Debt consolidation makes sense for consumers with high rate card debt

Top reasons for getting a personal loan			
Ideal customer	Personal loan product	Benefit	Need addressed?
Card debt: \$12k, Other revolving debt: \$8k	Personal loan: \$20k	Debt consolidation	✓
Monthly payment on two platforms	Monthly payment in one place	One monthly payment	✓
Avg rate: 16.99% to 20.99%	Fixed APR of 13.99%	Lower rate	✓
Timeline for payoff unclear	Duration: 60 mo.	Timeline for debt payoff	✓

Source: Company data, Goldman Sachs Global Investment Research.

Outlining the traditional players and product set in personal lending

The credit card industry is highly consolidated as the top seven credit card issuers account for roughly 75% of all credit card purchases made in the U.S.

Banks as well as non-banks have long offered debt consolidation products. Personal loan underwriting, origination, and servicing draws many parallels to credit card lending (national business with scale needed) and is the reason why the largest players in personal lending (Discover, Citibank, Chase, Wells Fargo, Bank of America, and Capital One) are also the largest credit card issuers. Having an existing book of credit card holders also affords those large banks with a pool of potential customers to target. In fact, some banks have had success in growing such product, as Discover’s personal loan initiative has resulted in a 58% CAGR since 2007 and a \$5.0bn portfolio as of 4Q14. See Exhibits 11-13.

Exhibit 11: Personal loan product characteristics offered by banks

Lender	Maximum loan amount	Rate	Term	Penalty for repayment	Origination fee	Online application ?	Lender	Maximum loan amount	Rate	Term	Penalty for repayment	Origination fee	Online application ?
C	\$50,000	8.99% to 20.74%	24 to 60 mo.	N/A	None		PNC	\$25,000	7%+	Up to 60 mo.	None	None	
DFS	\$25,000	6.99% to 18.99%	36 to 84 mo.	None	None	✓	STI	\$100,000	5.99% to 9.99%	24 to 84 mo.	None	None	✓
KEY	N/A	7.24% to 12.39%	12 to 60 mo.	\$150 for first 18 mo	\$125	✓	TD Bank*	\$50,000	7% to 10%	N/A	N/A	50	✓
MTB	\$25,000	5.99% to 9.49%	Up to 60 mo.	N/A	N/A	✓	WFC	\$100,000	10.238% to 23.622%	Up to 60 mo.	None	None	✓

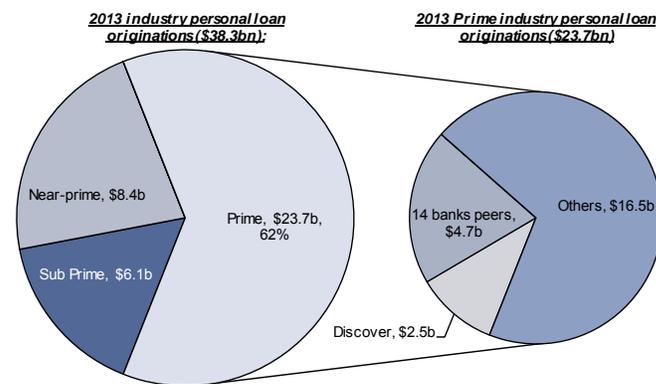
Source: Company data, Goldman Sachs Global Investment Research.

Exhibit 12: The big banks have personal loan portfolios

Personal lending portfolios at banks		
3Q14	Amount	Comment
WFC	\$17.3bn	Other revolving credit and installment" less "student" and "margin loans"
C	\$13.4bn	"Installment, revolving credit, and other"
BAC	\$5.8bn	"Unsecured consumer loans & other consumer loans"
USB	\$6.2bn	"Installment loans"
DFS	\$4.8bn	"Personal loans"
COF	\$2.6bn	"Retail banking loans (ex-small business) and installment loans"
JPM	\$1.5bn	"Student and other" less "student"

Source: Company data, Goldman Sachs Global Investment Research.

Exhibit 13: The personal loan market skews towards Prime



Source: Company data, Goldman Sachs Global Investment Research.

FAS 166/167: FAS 167 governs consolidation of variable interest entities, which include securitization trusts, making consolidation analysis becoming less quantitative and more qualitative. FAS 166 governs accounting for transfers of financial assets.

Credit card issuers fund loans with deposit and sometime securitize: While many credit card issuers fund loans with deposits, many also use securitization, largely for funding and capital relief. In particular, banks would take a portfolio of already originated receivables and securitize such loans into bankruptcy-remote trusts that were funded with cash provided from note investors. This would allow banks to transfer such loans off-balance sheet, allowing them to “re-use” the funding and the capital to make new loans. This off-balance sheet treatment resulted in credit card ABS issuance rising to \$118bn/yr in 2008. FAS 167/177, which went into effect in 2010, forced banks to consolidate these previously off-balance sheet loans back onto their balance sheet. This retained securitization’s funding mechanism, but got rid of the capital relief as banks now have to hold capital against the total managed loan portfolio (off B/S and on B/S).

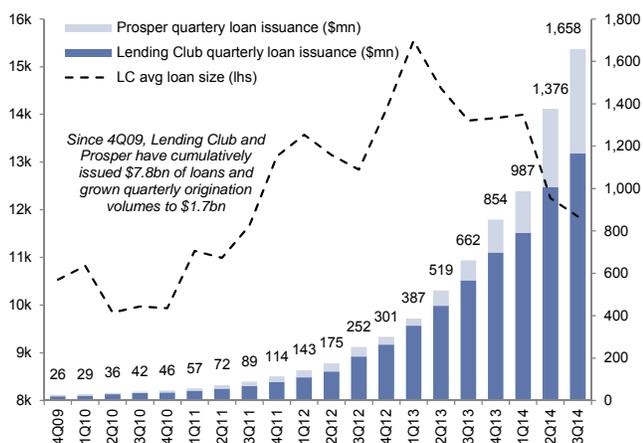
Introducing the new entrants: Lending Club and Prosper

P2P lending:

The practice of lending money to unrelated individuals, or "peers", without going through a traditional financial intermediary (i.e., a bank or other traditional financial institution).

The new entrants are peer-to-peer (P2P) lenders such as Lending Club (ticker: LC) and Prosper (private), both of which have seen tremendous growth. In fact since 4Q09 Lending Club and Prosper have collectively grown originations from \$26mn per quarter in 4Q09 to \$1.66bn in 3Q14, a 129% CAGR. Surprisingly, the loan products offered by P2P lenders are similar to personal loans issued by banks as they are an unsecured product and largely used for debt consolidation or to refinance debt. For example, 77.7% of loans originated on the Lending Club platform to date (as of 3Q14) have been for either debt refinancing (56.6%) or credit card payoff (21.1%). The new entrants have entered the market as they questioned whether the existing banking system was the most efficient mechanism to allocate capital from savers and depositors into the hands of people and businesses looking for affordable credit, and built an online marketplace to solve such issue. In addition, they were able to build a cost effective solution with no use of insured deposits, thereby avoiding dealing with many of the costly regulations that a deposit taking institution would have to deal with.

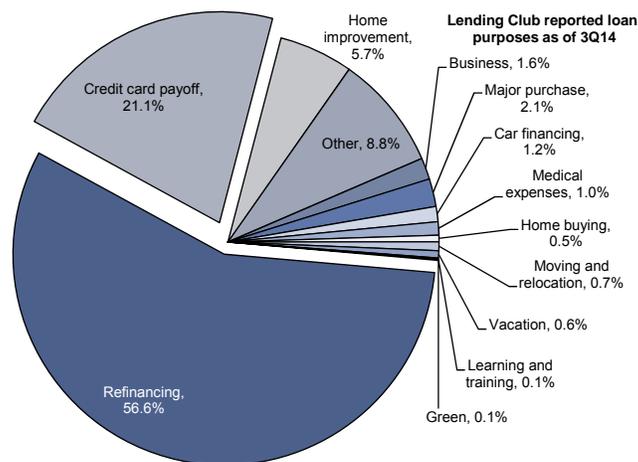
Exhibit 14: Peer to peer lenders have experienced tremendous growth in originations



Since 4Q09, Lending Club and Prosper have cumulatively issued \$7.8bn of loans and grown quarterly origination volumes to \$1.7bn

Note: Prosper data estimated from graphics in company filings
Source: LendingClub.com, Goldman Sachs Global Investment Research.

Exhibit 15: ...with 78% of such loans at LC being used to refinancing existing loans or pay down credit card debt



Note: as of 3Q14
Source: LendingClub.com, Goldman Sachs Global Investment Research.

The differences between the business models of the new entrants vs the traditional players

Overall products are similar: The personal loan product offered by P2P lenders is quite similar to personal loan products offered by banks. These similarities include that both are generally 1) fixed-rate products (as opposed to variable rate), 2) are term based, with maturities of 36-60 months, 3) are fully amortizing (loan will be paid-off by the end of its set term), and 4) are offered in sizes in the \$30K range. Also, rates offered by P2P lenders appear similar to those offered by banks. The only major difference we have identified is that the P2P lenders charge an upfront fee, typically up to 5%, while banks don't tend to charge an upfront fee.

However, funding is the biggest differences: The biggest difference between the traditional and new entrant models is the way the loan is issued and funded. For a personal loan made by a bank, the loan is funded with deposits, is held on the banks' balance sheet and they maintain the credit risk.

In contrast, P2P lenders connect investors (willing to take credit risk) to borrowers, largely without the intermediation of a traditional financial institution, leaving the intermediary

(the P2P platform) with no retained credit risk. While the process of connecting borrowers and lenders has been around for many years, **the differentiating aspect of today's P2P lenders is the use of technology, the internet, and social networks so that the process can be anonymized.** In other words, borrowers can borrow money from people they have never met and investors can lend money to a multitude of anonymous borrowers based on their credit information and statistics.

Exhibit 16: Similarities and differences of bank and P2P personal loans

Lender	Maximum loan amount	Rate	Term	Origination fee	Online application ?	Underwriting done by	FICO/ credit score used	Income verification by bank	Penalty for repayment	Means of funding
Banks	~\$50K	7% to 12%	Up to 60 mo.	None	✓	Mostly human	Yes	Usually	None	Deposits
P2P lenders	~\$35K	6.76% to 32.65%	36 to 60 mo.	Up to 5%	✓	Algorithm	Yes	Partially	None	Loan/note investors

Source: Company data, Goldman Sachs Global Investment Research.

How P2P lenders set interest rates? Prosper and Lending Club's interest rates take into account credit risk and market conditions. Rates depend on credit score, loan purpose, employment type, loan amount, loan term, credit usage and history

P2P platforms use a fixed rate loan model: While Prosper, the pioneer of P2P lending (founded in 2005) initially used a reverse auction process allowing a borrower to state the maximum interest rate that they are willing to pay for a loan and then lenders bid that rate down, both lending platforms (LC and Prosper) today use a fixed-rate model. In a fixed rate model, which is largely chosen for its simplicity, investors decide whether or not to invest in a loan at a rate that is assigned from the platform's loan pricing algorithm. Once a loan is fully funded, it is typically is taken down from the platform. Investors typically invest in a small portion in many different loans, thereby gaining diversification and spreading risk.

Process of applying: The means as to which one would apply for a loan using a P2P lender is one differentiating factor. To get a personal loan from a bank, you either would need to walk into a branch or use a somewhat limited online application. While lenders such as SunTrust and Discover have built out online portals to ease the application process and offer the products nationally, it's our understanding that the underwriting process still has human involvement, which inherently slows the response rate and funding. P2P lenders use online marketplaces backed by sophisticated technology platforms that automate the application, underwriting, and pricing processes. This limits human involvement and thus speeds up the process.

Prime borrower: A classification of borrowers that are deemed to be the most credit-worthy. In general a borrower with a FICO score greater than 620/660 is considered to be Prime.

P2P platforms focus on Prime: Both Lending Club and Prosper focus on providing loans to Prime credit quality borrowers, which is generally defined as those with a FICO score above 660. Note FICO scores range from 300-850. Lending Club for example, has minimum credit requirements for its standard loan program (i.e., those offered to investors on the marketplace), including a FICO score of at least 660, satisfactory debt-to-income ratios, 36 months of credit history and a limited number of credit inquiries in the last six months. To post a loan listing on Prosper, the minimum credit score is 640.

Exhibit 17: We estimate the existing personal loan market is ~\$85bn of receivables

GS estimate of existing personal loan market size (in \$bns)									
Personal loan market	2006	2007	2008	2009	2010	2011	2012	2013	2014
Loan originations (Bn)	63.1*	67.3*	54.9*	36.2*	21.0*	26.8	32.5	38.3*	41.4
Pay downs/NCOs	NA	-53.8*	-60.7*	-54.1*	-51.1	-39.9	-34.0	-33.3	-35.6
Receivables (Bn)	129.1*	142.6*	136.8*	118.9*	88.8	75.6	74.1	79.1	84.9
Amortization/NCO rate	NA	-42%*	-43%*	-40%*	-43%	-45%	-45%	-45%	-45%

*means actual value; rest of numbers are estimated by GS

Source: Company data, Discover Investor Day presentations, Goldman Sachs Global Investment Research estimates.

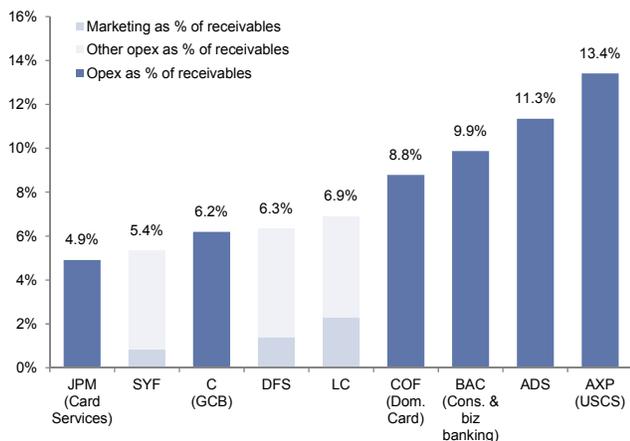
Managed receivables:

The receivables amount on which a company performs billing and collection activities, including receivables that have been sold with and without credit recourse and are no longer reported on the balance sheet.

The competitive advantages: Cost, regulation, and capital

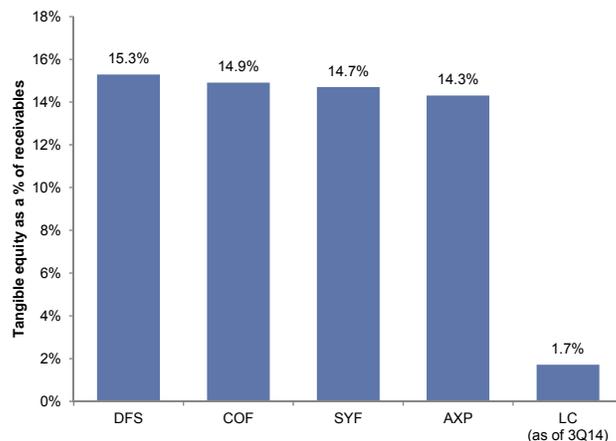
- 1) Cost (although not as meaningful as one would expect):** While P2P lenders generally cite having a cost advantage over traditional banks given technology, the limited financial data we have available does not show a meaningful cost difference. In fact, Lending Club’s 3Q14 expenses (annualized) amounted to 6.9% of managed receivables. This means LC is less efficient (per loan) than that of the consumer lending businesses of JPM (4.9%), Synchrony (5.4%), Citi (6.2%), and Discover (6.3%), though it’s more efficient than COF, BAC, ADS, and AXP. See Exhibit 18. Over time, scalability of platforms and low incremental costs/loan could improve this cost advantage versus banks.

Exhibit 18: While LC’s expenses (as a % of receivables) are in-line with its peers...



Source: Company Data, Goldman Sachs Global Investment Research

Exhibit 19: LC’s competitive advantage comes from significantly less stringent capital requirements



Source: Company Data, Goldman Sachs Global Investment Research

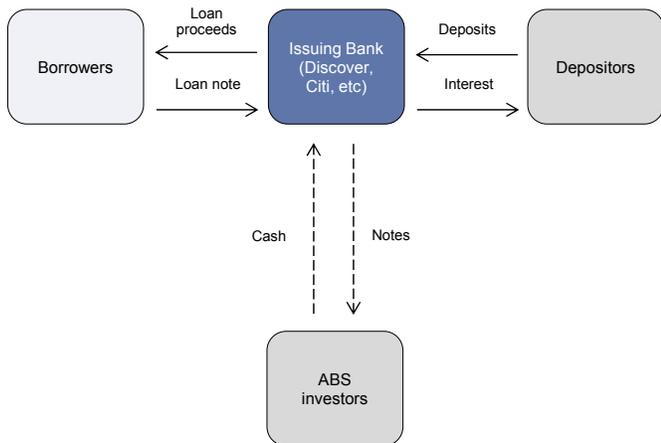
WebBank: WebBank is an FDIC-insured, state-chartered industrial bank headquartered in Salt Lake City, Utah. It was organized in 1997. WebBank partners with companies to provide niche financing to businesses and consumers on a national basis.

- 2) Regulation:** P2P lenders typically use a partner bank model that helps isolate them from certain bank regulations: P2P lenders, such as Lending Club, generally rely on partner or affiliate banks to originate loans and to comply with various federal, state and other laws. For example, Lending Club and Prosper both use WebBank, a Utah-chartered industrial bank (previously known as an ILC) as their primary issuing bank. This bank originates the loan, which is subsequently purchased by the P2P platform and then delivered to the investors in exchange for cash. By originating the loans at WebBank, much of the regulatory burden remains at the bank (FDIC, State of Utah, etc), rather than at the P2P platforms.

What is an Industrial Loan Company? An industrial loan company (ILC) or industrial bank (such as WebBank) is a financial institution in the US that lends money, and may be owned by non-financial institutions. While they are currently chartered by seven states, most are chartered in Utah. ILCs are authorized to engage in banking, with the exception of taking demand (i.e. checking) deposits. The flexibility of an IB charter has made it an attractive vehicle for some corporations to have a depository charter and not to become subject to the limitations of the Bank Holding Company Act or the Glass Steagall Act. ILCs have become a mainstay for the issuance of credit cards nationally (as well as the issuance of P2P loans), as most ILCs are set up to take advantage of Utah's or

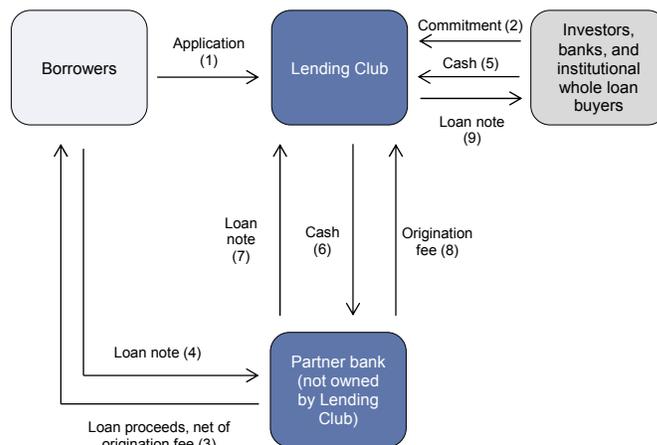
South Dakota’s favorable Consumer Code (i.e., no caps on interest rates charged and exportation of interest).

Exhibit 20: A typical bank funds a loan with deposits or ABS debt



Source: Company Data, Goldman Sachs Global Investment Research

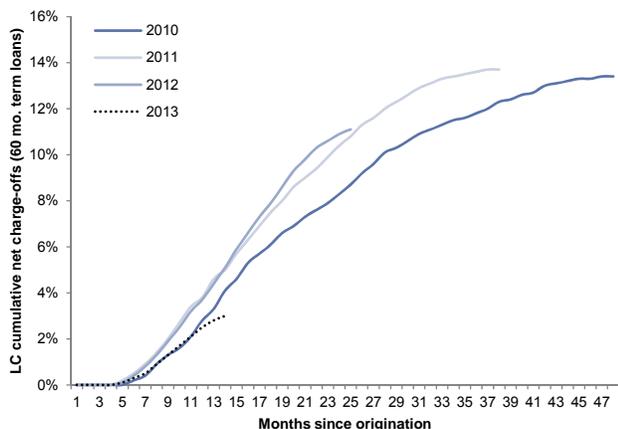
Exhibit 21: Lending Club use a partner bank to originate loans that are subsequently purchased by Lending Club



Source: Company Data, Goldman Sachs Global Investment Research

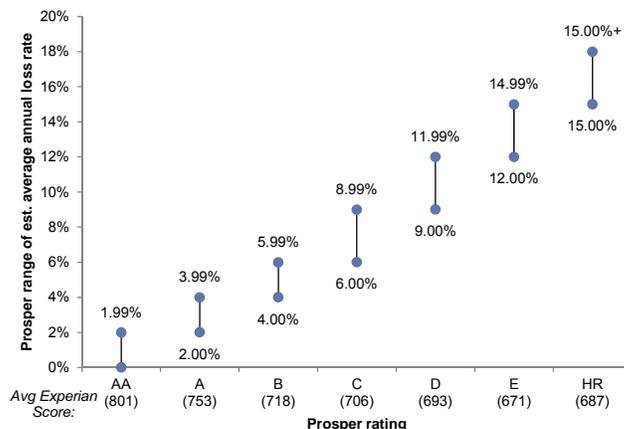
- 3) Capital arbitrage:** As noted above, P2P lenders don’t retain any residual interest and thus do not assume credit risk. This means that P2P lenders do not have to hold capital against the loans they originate as such capital is provided by third party investors. This allows the P2P lenders to maintain a significantly larger receivables portfolio against their equity base. For example, before its IPO, Lending Club held 1.7% of tangible equity against its receivables portfolio, well below the 14-15% that the credit card companies (AXP, SYF, COF, DFS) hold against their portfolios. Lending Club is able to hold such little capital as it is not exposed to credit risk. See Exhibit 19.
- 4) No credit risk:** Unlike a bank where rising credit costs can dampen profitability and reduce desire to grow its business, P2P lenders do not take credit risk, thereby limiting their profitability declines in a credit crisis. While P2P lenders have some recurring fees such as servicing income, much of their revenue comes from origination fees. Continued originations are partly a function of its investor demand for notes, which is related to investor confidence. Investors could lose confidence and interest investing in loans if actual losses and return on investments (ROI) deviate too far from expected. Given the expected ROI is effectively determined by a platforms pricing algorithms, the success of investors and thus their confidence in investing rests on how accurate a platform’s underwriting mechanisms are able to price for credit losses; this is something that will be tested over time.

Exhibit 22: LC's post-crisis vintages are seasoning at roughly 13-14% peak losses today...



Source: Company Data, Goldman Sachs Global Investment Research

Exhibit 23: ...although estimated losses vary widely depending on risk rating



Source: Company Data, Goldman Sachs Global Investment Research

Sizing the opportunity: a \$258bn opportunity for new entrants, putting \$4.6bn of banking profits at risk

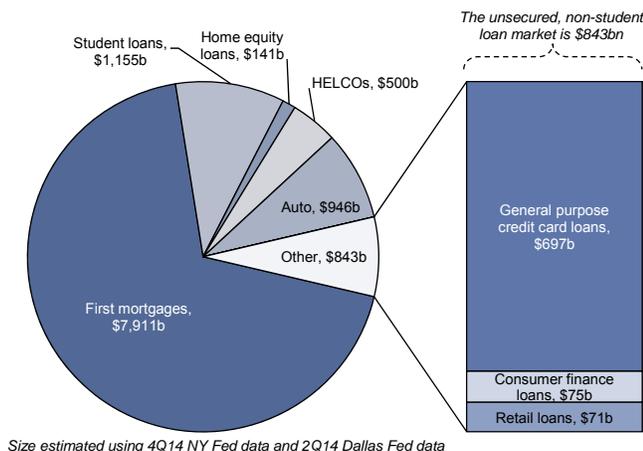
NY Fed data: The Federal Reserve Bank of New York's publishes its Household Debt and Credit Report that provides a quarterly snapshot of household trends in borrowing and indebtedness. The FRBNY Consumer Credit Panel consists of detailed data of individuals and households from 1999 to 2012. The panel is a nationally representative 5% random sample of all individuals with a social security number and a credit report (usually aged 19 and over).

Sizing the personal loan market opportunity for P2P lenders includes both the outstanding amount of unsecured personal loans and unsecured other debt (i.e., credit card loans) that could be consolidated into a personal loan product. For the former (sizing the existing personal loan market), the data set is sparse: Discover at its 2010 investor day noted that the personal loan market amounted to \$119bn of receivables and \$36bn of annual originations in 2009 and it has subsequently noted that the personal loan market in 2013 amounted to \$38bn of originations. That said, using estimates of amortization rates and limited origination data, **we estimate as of 2014, there are about \$85bn of personal loan receivables outstanding.** However, we would note that likely less than 2/3rds of such receivables are Prime, as in 2013 a credit bureau report 38% of personal loan originations were non-prime. Given P2P lenders' focus on Prime, these non-prime loans are less relevant. Within the NY Fed data, we believe personal loans largely fall into the "consumer finance" category (\$75bn) as well partially in retail loans (\$71bn).

...other unsecured debt market totals \$843bn...: While P2P lenders could potentially take share in the \$85bn existing personal loan market, the larger opportunity in our view is in the pool of other unsecured debt (i.e., credit card loans) that could be consolidated into a personal loan product. This would represent an additional \$758bn of debt at first glance when subtracting the \$85bn of existing personal loans from \$843bn of industry unsecured non-student debt.

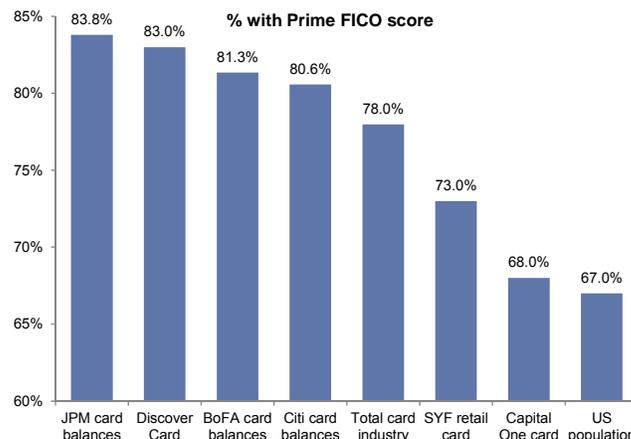
....though it's not all Prime...: Similar to what we mentioned above, not all of industry receivables are Prime—the target market of the P2P lenders. In fact, according to the Fair Isaac Corporation only 67% of the US population is Prime and 78% credit card debt is Prime, making the non-prime part of the credit card market less able to be refinanced at a P2P lender. See Exhibit 25.

Exhibit 24: There is \$843bn of unsecured consumer debt



Source: Dallas Fed, NY Fed, Goldman Sachs Global Investment Research.

Exhibit 25: ...though it's not all Prime (two-thirds are prime)



Source: Company data, Goldman Sachs Global Investment Research estimates.

Transactors vs

revolvers: a transactor is a cardholder who transacts – that is, makes purchases with a credit card and does not carry a balance and therefore pays no interest. The transactor's counterpart is a revolver, which is one who uses the card and carries a balance, incurring interest charges.

....or likely to be consolidated: Consolidating credit card balances (and thus going to a P2P lender) is not for everyone, as people who pay off their bill in full each month (transactors) don't pay any interest. People that just pay the minimum amount (or slightly above the minimum amount) don't really have a desire to pay off their credit card debt, as they're using credit cards for leverage, making them less likely to want to consolidate debt. This leaves a group of credit card customers that use the card somewhat as an amortizing loan (and a desire to pay it down), making a debt consolidation product attractive to this subset. We refer to this subset as "normal payers," which make up 43% of credit card balances. See Exhibit 26.

Exhibit 26: 43% of industry general purpose card balances (or 35% of accounts) are used by borrowers that pay off their card debt in a somewhat amortizing fashion

General purpose card market composition			
Industry credit card account composition:		Industry credit card balance composition:	
% of accounts to transactors	31%	% of balances to transactors	10%
% of accounts to minimum payers	11%	% of balances to minimum payers	15%
% of accounts to min payers +\$50	23%	% of balances to min payers +\$50	31%
% of accounts to normal payers	35%	% of balances to normal payers	43%
Total industry account composition	100%	Total industry card balances comp	100%

Source: University of Chicago, CFPB, University of Pennsylvania, Goldman Sachs Global Investment Research estimates.

Promo rates: Promo rates are a low interest rates offered on a credit card balance for a certain period of time. Often it is an introductory interest rate only offered during the first few months after an account is opened.

We estimate the potential market size for unsecured debt refinance is \$258bn: When incorporating FICO distributions (Prime only), payment behavior (normal payers only), and rate (excludes promo rate balances), below we attempt to size the potential market size for P2P debt refinancing, which we estimate to be \$258bn. The market is comprised of \$127bn of general purpose credit card debt, \$13bn of store card debt, and \$118bn of other consumer debt which includes personal loans/debt consolidation products originated by banks and non-banks (P2P lenders). See Exhibit 27.

Exhibit 27: We estimate the potential market size for unsecured debt refinance is \$258bn

General purpose card debt that could be refinanced			Legend	
General purpose credit card market size	697	A		
% of industry card balances to normal payers	43%	B		
General purpose card balances of normal payers	301	C=A*B		
% of card balances of normal payers that are Prime	50%	D		
Card balances of Prime normal payers	151	E=C*D		
% of balances to prime normal payers that are promo	16%	F		
Less: balances to prime normal payers that are promo	-24	G=E*F		
Addressable card market for prime credit card debt refinance	127	H=E+G		

Store card debt that could be refinanced			Legend	
Private label (store card) credit card market size	100	I		
% of industry card balances to normal payers	43%	J		
Private label card balances of normal payers	43	K=I*J		
% of card balances of normal payers that are Prime	40%	L		
Card balances of Prime normal payers	17	M=K*L		
% of balances to prime normal payers that are promo	25%	N		
Less: balances to prime normal payers that are promo	-4	O=M*N		
Addressable card market for prime store card debt refi	13	P=M+O		

Other consumer debt that could be refinanced			Legend	
Consumer finance loans	75	Q		
Retail loans	71	R		
Other loans	172	S		
Total non bankcard debt from NY Fed data	318	T=Q+R+S		
Less: private label card included in above 3 categories	-100	U=-I		
Less: revolving overdraft lines of credit (OD LOC)	-42	V		
Sub-total of other consumer debt	176	W=T+U+V		
Proportion of US population with Prime FICO score	67%	X		
Addressable market for prime other consumer debt	118	Y=W*X		

Addressable market total for debt refinance/consolidation			Legend	
Credit card debt	127	H		
Store card debt	13	P		
Other consumer debt	118	Y		
Total addressable market for debt refi/consolidation	258	Z=H+P+Y		

Source: NY Fed, CFPB, SNL Financial, company data, Goldman Sachs Global Investment Research estimates.

Banks are generally able to earn 20%+ ROEs on personal loan products. Within the banking world, banks are generally even able to earn ROEs similar to that of a credit card in a personal loan product even if it originally was a credit card loan refinanced into a personal loan as lower OPEX and lower losses offset the lower interest earned. See Exhibit 28 for a comparison of normalized personal loan and bankcard economics for banks.

Exhibit 28: Banks are generally able to maintain 20%+ ROEs even on a personal loan

	Normalized credit card returns*			Normalized personal loan returns**			Difference	
	Low-end	High-end	Through cycle	Low-end	High-end	Through cycle	Through cycle	
Revenue margin	12.00%	12.50%	12.25%	Net interest margin	8.00%	9.00%	8.50%	-3.75%
Loss Provision	-4.5%	-3.5%	-4.0%	Loss Provision	-4.0%	-3.0%	-3.5%	0.5%
Operating Expenses	-5.3%	-4.0%	-4.6%	Operating Expenses	-2.0%	-1.0%	-1.5%	3.1%
Pre-tax ROA	2.3%	5.0%	3.6%	Pre-tax ROA	2.0%	5.0%	3.5%	-0.1%
Tax rate	37.5%	37.5%	37.5%	Tax rate	37.5%	37.5%	37.5%	0.0%
Tax drag on ROA	-0.8%	-1.9%	-1.4%	Tax drag on ROA	-0.8%	-1.9%	-1.3%	0.0%
After-tax ROA	1.4%	3.1%	2.3%	After-tax ROA	1.3%	3.1%	2.2%	-0.1%
Efficiency ratio	44%	32%	38%	Efficiency ratio	25%	11%	18%	-20%
Capital required	11.00%	9.50%	10.25%	Capital required	11.00%	9.50%	10.25%	0.00%
Leverage	9.1x	10.5x	9.8x	Leverage	9.1x	10.5x	9.8x	0.0x
ROE	12.8%	32.9%	22.1%	ROE	11.4%	32.9%	21.3%	-0.8%

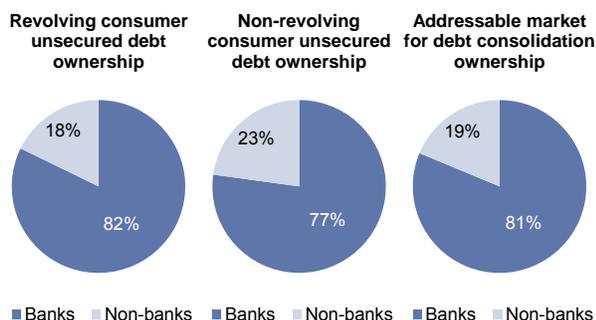
*GS ests based on DFS & JPM investor day disclosures **GS estimates based on DFS investor day disclosures

Source: Company Data, Goldman Sachs Global Investment Research

Revolving debt:
Revolving debt is money owed to a creditor who sets your monthly payment based on the current balance. Credit cards or retail store cards are revolving credit.

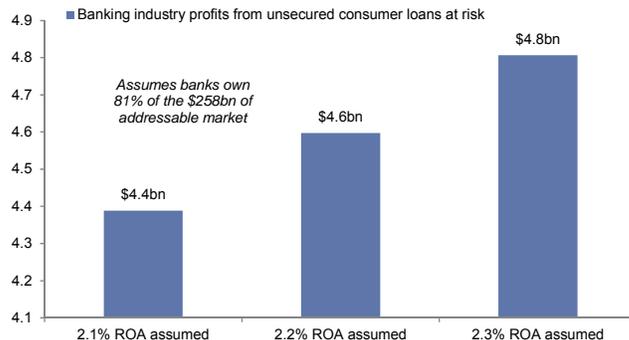
We estimate the banking profit pool at risk to be \$4.6bn: Approximately 82% of revolving consumer unsecured debt is held at banks while 77% of non-revolving consumer debt is at banks. Given that revolving comprises 81% of total unsecured consumer debt (ex. student), this roughly puts bank ownership of the addressable market for debt consolidation at 81%. Applying this 81% to the \$258bn addressable market (= \$209bn) and a 2.2% ROA, this would imply that banks earn roughly \$4.6bn off of this profit pool – a profit pool potentially at risk to the P2P lenders. See Exhibits 29-30.

Exhibit 29: 83% of unsecured consumer debt (ex. student) is owned by banks...



Source: Company data, Goldman Sachs Global Investment Research.

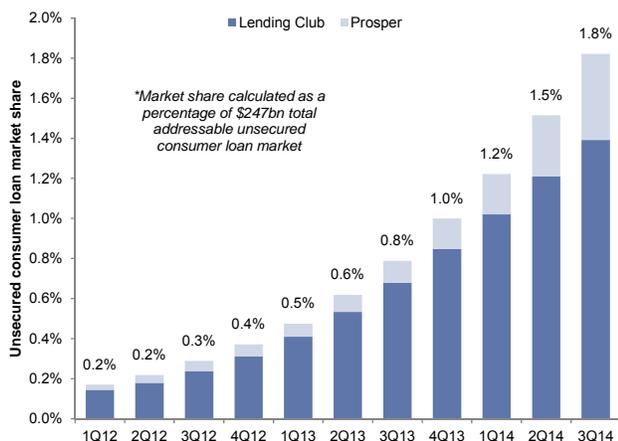
Exhibit 30: ...putting potentially \$4.6bn of profit pool at risk



Source: Company data, Goldman Sachs Global Investment Research.

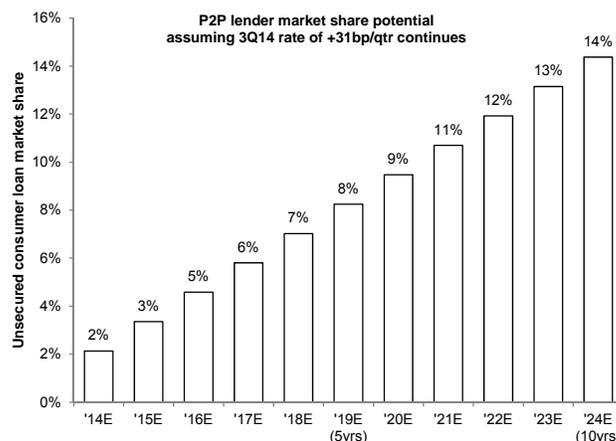
P2P lenders are growing market share by 31bp/qtr, which would imply be 8% market share in 2019...: Assuming a relatively constant addressable market for unsecured consumer debt of \$258bn, the P2P lenders grew their market share 31bp QoQ to 1.8% as of 3Q14. In 1Q12, the P2P lenders had just 0.2% share. Assuming the 31bp/qtr market share gain rate continues implies that their market share could reach 8% in 5 years (2019) or 14% in 10 years (2024). See Exhibits 31-32

Exhibit 31: The P2P lenders are growing their share of outstanding by 31bp/qtr



Source: Company Data, Goldman Sachs Global Investment Research

Exhibit 32: ...which if maintained, would mean a 8% market share in 5 years or 14% in 10 years



Source: Company Data, Goldman Sachs Global Investment Research

...which could pose a risk to \$360mn in industry profits in 5 years or \$725mn in 10 years: If P2P lenders continue to grow market share at the current pace, it would imply that \$360mn of the banking industry's profit pool could be at risk in 5 years (assumes 2.2% ROA) or \$725mn in 10 years. AXP, DFS, SYF, ADS, COF JPM, BAC, and C would be most at risk given large consumer loan concentrations. See Exhibits 33-34.

The traditional player response: building their own automated online lending platforms: While the new entrants' current market position (2% market share) are certainly not that large of a threat to the incumbents, as their market share grows and more companies enter the space, we expect the traditional banks to respond. We have actually already started to see banks respond, as SunTrust for example has an online Prime

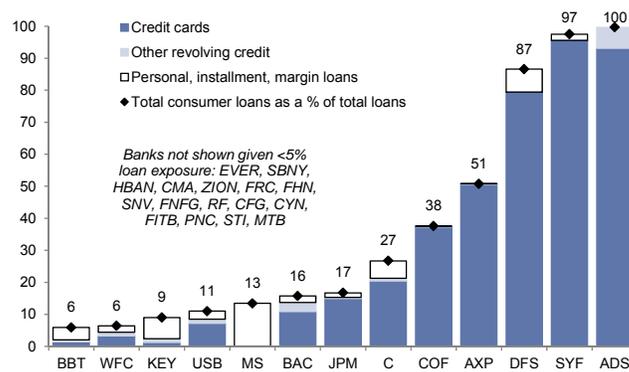
unsecured lending platform called LightStream. Although, the platform is operating within the realms of banking, the features and user interface are very similar to the new entrants, suggesting that such a platform could be a formidable response to defending market share. We expect more of this to continue at other banks.

Exhibit 33: ...which could pose a risk to \$360mn in profits in 5 years or \$725mn in 10 years

Lost banking sector earnings in \$mn		ROA on lost business				
		2.0%	2.1%	2.2%	2.3%	2.4%
Market share of P2P lenders (current is 2%)	2%	0	0	0	0	0
	4%	(110)	(115)	(121)	(126)	(132)
	6%	(220)	(231)	(242)	(253)	(264)
	9%	(330)	(346)	(363)	(379)	(396)
	11%	(440)	(462)	(484)	(506)	(528)
	13%	(550)	(577)	(604)	(632)	(659)
	15%	(659)	(692)	(725)	(758)	(791)

Source: Company Data, Goldman Sachs Global Investment Research

Exhibit 34: AXP, DFS, SYF, and ADS are most at risk



Source: Company Data, Goldman Sachs Global Investment Research

Small business lending: technology driving new entrants

OnDeck: Founded in 2006 and HQ'd in New York City, OnDeck is a technology-enabled financial platform that provides loan financing to small and medium-sized businesses in the United States

Kabbage: Founded in 2009, Kabbage is a technology and data company that has pioneered a new automated way to lend money to small businesses and consumers.

C&I loan: A commercial and industrial loan (C&I loan) is a loan to a business rather than a loan to an individual consumer. C&I loans are usually used to provide either working capital or to finance major capital expenditures. This type of loan is usually short-term in nature.

Small business lending is likely to see continued disruption as changing technology, as well as the ability to participate in the parts of the market that banks traditionally don't participate, will drive growth to alternative lenders (OnDeck, Kabbage). The biggest disrupting factor is technology as the new entrants use algorithms and data to eliminate the usually burdensome cost of underwriting and processing many small sized loans. We estimate \$178bn of small business loans in the banking system that could be "at risk" of being disintermediated, putting \$1.6bn of banking industry profits at risk. That said, the new entrants have the potential to expand the market, as their approval rates (62%) are significantly higher than that of big banks (21%).

Exhibit 35: \$1.6bn of profit may be at risk for banks

Type	Total market size	Market size type	% inside banking system	Amount in banking system	% in banking system at risk of leaving	Amount at banks at risk of leaving	Total banking profit pool at risk	Select disruptors / new entrants	Competitive advantage?
Unsecured personal lending	\$843bn	Loans O/S	81%	\$683bn	31%	\$209bn	\$4.6bn	Lending Club, Prosper	Lower capital requirement, technology
Small business loans	\$186bn	Loans O/S	95%	\$177bn	100%	\$177bn	\$1.6bn	OnDeck, Kabbage	Technology (drives time, convenience)
Leveraged lending	\$832bn	Loans O/S	7%	\$57bn	34%	\$19bn	\$0.9bn	Alternative AM, BDCs	Regulatory
Student lending	\$1,222bn	Loans O/S	5%	\$65bn	100%	\$65bn	\$0.7bn	SoFi, Earnest, CommonBond	Regulatory, technology, convenience
Mortgage origination	\$1,169bn	Ann'l volume	58%	\$678bn	100%	\$678bn	\$2.1bn	Quicken, PFSI, Freedom	Regulatory, convenience
Mortgage servicing	\$6,589bn	Loans O/S	73%	\$4,810bn	6%	\$300bn	\$0.1bn	OCN, NSM, WAC	Regulatory, cost
CRE lending	\$2,354bn	Loans O/S	56%	\$1,322bn	9%	\$118bn	\$0.8bn	Comm. mREITS, alt. lenders	Regulatory, market dislocation
Total	\$13,195bn		59%	\$7,792bn	20%	\$1,566bn	\$10.9bn		

Source: Company data, Goldman Sachs Global Investment Research.

Small businesses typically use bank loans to help maintain cash flow, hire employees, purchase new inventory or equipment, and grow their businesses. For the purposes of this report, we define small business loans as commercial and industrial loans (i.e., loans to finance working capital, payroll, and equipment) that are of less than \$1mn size. Loans have historically been critical for small businesses, as unlike large corporate firms, small business lack the ability to access the capital markets (both debt and equity) and retained earnings represents a less stable source of capital.

C&I loans, commercial credit card, SBA loans – the traditional means of getting small business credit

While most banks have small business lending departments, generally it hasn't been a big focus area as small business lending has high search, transaction, and underwriting costs relative to the potential revenue. Said differently, it costs a somewhat similar amount to underwrite a \$5mn loan versus a \$200k loan. Given commitments to their communities, as well as less opportunity or ability to make larger loans, small community banks and regional banks tend to have larger concentrations in small business loans than larger banks. Banks currently offer three main small business loan products: C&I loans, commercial credit cards, and SBA loans. See below for a table and descriptions of small business loan offering by banks.

Exhibit 36: Small business lending products offered by banks

Funding type	How is it structured?	Max loan amount	Rate	Fee	Term	Processing time
Small business C&I loans offered from banks:						
C&I Line of Credit	Standard line of credit	Varies	Fed Funds / LIBOR + rate	Upfront, unused fee	~2yrs	Varies
Commercial Card	Revolving line of credit	Varies	Standard card APR	Late fees, annual fees	Revolving	Varies
SBA 7(a) loans	Standard term loan	\$5,000,000	Prime + 2.25% to 4.75%	Guaranty fees	Up to 25 yrs	Up to several months

Source: U.S. Small Business Administration.

- 1. Small business C&I loan:** These are revolving lines-of-credit typically used to finance equipment, working capital, payroll, and other non-real estate oriented activities. While mostly unsecured in nature, some C&I loans are secured. Most C&I revolving facilities are floating rate (based on 1 or 3 month LIBOR) and have terms of up to 2 years. Essentially all banks offer these.
- 2. Commercial credit card:** Similar to a personal credit card, these are revolving facilities that you use to make purchases typically over a payment network (Visa, etc) and pay them off over time as you wish. Banks with card capabilities (COF, AXP, JPM, USB, etc) are the biggest issuers of commercial cards.
- 3. SBA government guaranteed loans:** To help foster small business development and increase banks willingness to lend to small businesses, the Small Business Administration (SBA) has a number of loan guarantee programs, where the SBA guarantees against default for certain portions of business loans made by banks (and non-banks) that conform to its guidelines. This allows for banks to make loans with longer repayment periods and looser underwriting criteria than normal commercial business loans. The most popular SBA loan programs are 7(a) loans, which are effectively term C&I loans that the SBA guarantees up to 85% and 504 loans, which is used to finance major fixed assets such as equipment or real estate (50% guarantee). Given that the SBA will partially guarantee loans up to ~\$5mn in size, banks are incentivized to originate small business loans under the SBA guaranteed programs as opposed to fully assuming the credit risk, although this is not always the case. Most banks have SBA programs. See Exhibits 37-38.

SBA fun fact: Under the Recovery Act and the Small Business Jobs Act, SBA loans were enhanced to provide up to a 90 percent guarantee in order to strengthen access to capital for small businesses after credit froze in 2008.

Exhibit 37: There is \$69.6bn of SBA 7(a) loans O/S

Unpaid principal balance (UPB) by SBA program					
\$s in bn	9/30/11	9/30/12	9/30/13	9/30/14	12/31/14
7(a) Regular	56.4	60.1	63.7	68.2	69.6
504 Regular	26.6	26.9	26.9	27.2	27.1
SBIC Debentures	4.5	5.3	6.6	7.6	8.2
Other guaranteed	4.5	4.8	5.3	4.5	4.4
Guarantied Business	92.0	97.1	102.4	107.5	109.2
Direct Business	0.1	0.1	0.1	0.1	0.1
Disaster	7.5	7.2	7.2	6.8	6.7
Pre-1992 loans	0.1	0.1	0.1	0.0	0.0
Total	99.7	104.4	109.8	114.4	116.1
YoY growth	6.6%	4.8%	5.1%	4.3%	1.4%

Source: U.S. Small Business Administration.

Exhibit 38: Banks comprise about 80% of SBA volume

Most active SBA 7(a) lenders in FY 2014 (last qtr) snapshot					
Rank	Lender	Parent	# of loans	\$mn of loans	% of \$ vol
1	Wells Fargo Bank	Public bank	2,781	802	23%
2	Live Oak Banking Company	Prvt bank	463	387	11%
3	U.S. Bank National Association	Public bank	2,326	288	8%
4	The Huntington National Bank	Public bank	3,021	265	8%
5	JPMorgan Chase Bank, National	Public bank	2,540	250	7%
6	CDC Small Business Finance Corporation	CDC	271	210	6%
7	Ridgestone Bank	Prvt bank	232	169	5%
8	Noah Bank	Prvt bank	225	166	5%
9	Celtic Bank Corporation	Prvt bank	595	147	4%
10	New tek Small Business Finance	Public BDC	181	135	4%
11	BBCN Bank	Public bank	157	132	4%
12	Mortgage Capital Development Corporation	CDC	132	128	4%
13	SunTrust Bank	Public bank	252	127	4%
14	Empire State Certified Development Corporation	CDC	195	122	4%
15	Florida Business Development Corporation	CDC	200	107	3%
	Top banks		12,592	2,733	80%
	Top non-banks		979	703	20%

Note: CDC is a private non-profit corporation certified by the U.S. Small Business Administration (SBA) to provide SBA loans.

Source: U.S. Small Business Administration.

Banks generally sell the government guaranteed portfolio of SBA loans to the secondary market: Post origination of an SBA guaranteed loan, it is typical for a bank to sell the guaranteed portion of the loan into the secondary market. Banks do this largely because of secondary market demand – gain-on-sale margins can be above 10% – as well as the limited desire to hold a riskless asset on its balance sheet given banks would still need to hold capital against it for leverage rules. For the non-government guaranteed portion, most banks retain it in their loan portfolio, although some banks or originators (as the one in the below example), securitize the non-guaranteed balance. See Exhibit 39.

Exhibit 39: Selling the government guaranteed portion of SBA loans can result in an attractive (10%+) gain-on-sale

Net cash created in loan sale transaction per \$1mn of SBA loan originations			Direct revenue / expense of a loan sale transaction per \$1mn of SBA loan originations		
Loan amount	\$1,000,000	A	Net premium received on guaranteed balance sale	\$93,750	M=H
% of balance guaranteed	75%	B	Servicing asset capitalization	\$18,630	N
Unguaranteed balance	\$250,000	C=A*(1-B)	Total premium income	\$112,380	O=M+N
Guaranteed balance	\$750,000	D=A*B	Packaging fee income	\$2,500	P
Gross premium (gain-on-sale)	15.0%	E	Total revenue	\$114,880	Q=O+P
Excess (>10) premium split 50/50 with SBA	2.5%	F=(E-10%)/2	FV non-cash discount on uninsured loan participations	(\$12,500)	R
Net secondary mrk premium (GoS margin)	12.5%	G=E-F	Referral fees paid to alliance partners	(\$7,500)	S
Net premium received on guaranteed balance sale	\$93,750	H=D*G	Total direct expenses	(\$20,000)	T=R+S
Advance rate in securitization on unguaranteed balance	71%	I	Net risk-adjusted profit recognized	\$94,880	U=Q+T
Cash received in securitization of unguaranteed portfolio	\$177,500	J=C*I	As a % of total original loan amount	9.5%	V=U/A
Total cash received	\$1,021,250	K=D+H+J			
Net cash created pre-tax (post securitization)	\$21,250	L=A-K			

Source: Newtek company filings, Goldman Sachs Global Investment Research.

The new entrants to the small business lending market

How Merchant Cash Advances Work?

You receive cash upfront in exchange for a certain percentage of your future sales. At the end of every day, an automated process retrieves a percentage of your daily transactions until your advance is paid off.

There are a growing number of new entrants that are willing to provide financing to small businesses. Most of these new entrants are in the form of merchant advances, in that they generally provide some time of cash advance that is generally paid back via charge volume (Amex), percent of sales (PayPal, Kabbage), or card sales (Square). The new entrants underwrite an advance based on payment or sales history with a particular network. Lenders such as OnDeck use proprietary software to aggregate data about a business' operations, including social media (likes, etc), to underwrite the loans. **A common theme of all new entrants is that the underwriting and processing time is very short (as fast as 24 hours) and is very much an automated process.** Also, the new entrants generally have smaller loan sizes than traditional banks. See Exhibit 40.

Similar to the other players mentioned, simplified underwriting and quick application times have helped small business loan marketplaces emerge over the last several years. Employing a business model similar to Lending Club and Prosper, Biz2Credit and Credibility Capital, among others, provide a platform that helps to match small business borrowers to banks, institutional investors, etc. While still relatively small when compared to the broader market, Biz2Credit has funded over \$1.2bn in small business loans since 2007 when it was founded. Biz2Credit has partnered with small business payroll vendor Paychex, to create the Paychex Small Business Loan Resource Center, an online resource giving business owners access to more than 1,200 lenders; Paychex earns a referral fee from this partnership.

In addition, given headwinds from rates to their float income earned on their traditional relationships, we believe payroll vendors like ADP and PAYX can explore the possibility of venturing into the business lending market. This would elevate their credit risk to an extent but could generate higher interest income. Such a scenario (with 10%-30% of its funds to

business lending) for payroll companies could add 2%-5% upside to FY16-17E EPS estimates.

Exhibit 40: New entrants in small business lending target a much smaller customer, while offering slightly different loan/payment structures

Funding type	How is it structured?	Max loan amount	Rate	Fee	Term	Processing time
Small business C&I loans offered from banks:						
C&I Line of Credit	Standard line of credit	Varies	Fed Funds / LIBOR + rate	Upfront, unused fee	~2 yrs	Varies
Commercial Card	Revolving line of credit	Varies	Standard card APR	Late fees, annual fees	Revolving	Varies
SBA 7(a) loans	Standard term loan	\$5,000,000	Prime + 2.25% to 4.75%	Guaranty fees	Up to 25 yrs	Up to several months
New entrants:						
OnDeck Term Loans	Standard term loan	\$250,000	19.99% to 39.99%*	2.5%	Up to 24 mo.	As fast as 24 hrs
Kabbage	1/6 of balance repaid per month for 6 mo.	\$100,000	Varies^	--	Up to 6 mo.	As fast as 24 hrs
Amex 1 to 2 year financing	Repayment as % of receivables	\$2,000,000	Single fixed fee	--	1 or 2 yrs.	Varies
Alibaba e-Credit Line	Line for purchase with an Alibaba supplier	\$300,000	0.5% to 2.4%	--	1-6 month	Get a quote in under five minutes
PayPal Working Capital	Repayment as a % of daily sales	8% of LTM PayPal sales	Single fixed fee	--	--	As fast as 24 hrs
OnDeck Line of Credit	Standard line of credit	\$20,000	29.99% to 49.00%	\$20 monthly	--	As fast as 24 hrs
Square Capital	Repayment as % of credit card sales	?	Single fixed fee	--	--	As fast as 24 hrs
FundBox	Funding based on outstanding invoices	?	Variable fees	--	--	As fast as 24 hrs
Credibility Capital	Marketplace to match biz and investors	\$100,000	Varies	Varies	2 yrs	Varies
Biz2Credit	Marketplace to match biz and investors	?	Varies	Varies	Varies	Varies

*Term 24; ^Kabbage fees are 1% to 13.5% of the loan amount for the first 2 months and 1% for the remaining 4 months

Source: Company Data, Goldman Sachs Global Investment Research

The new entrants’ business models generally differ from banks as 1) there is heavy use of technology and payment or sales history to underwrite a loan, 2) typically have some type of online application, 3) are short-term in nature, and 4) have extremely quick turnaround times. **While technology seems to be the major competitive advantage of the new entrants (which provides time and convenience) regulation seems to help as well,** as the interest rates or implied fee rates charged by some of the new entrants equate to levels (>30%) that likely would garner regulatory scrutiny in the banking system. These loans differ from providers of personal loans above as personal loans are originated and sold **while many of the entrants here are putting these loans on their balance sheet.** This means new entrants will need viable funding sources through the cycle.

How technology, data analytics and connectivity drive efficiencies

Many of the leading disruptors across the key financial segments are leveraging advanced data analytics, technology with new sources of personalized and anonymized data to better serve customers, manage risk, reduce fraud, and empower the underwriting process.

The opportunity to leverage data analytics is being supported by four significant trends:

1. **Digital footprints are expanding** as consumers, small businesses, and enterprises increasingly leverage online banking, accounting, and other SaaS applications that capture a richer set of transactional information.
2. **Access to structured data sets**, including historical personalized transactional level detail has increased with data aggregation and connectivity solutions from cloud platforms (e.g., Yodlee, Intuit).
3. **Next-generation big data analytics technology platforms** like Spark and Hadoop, from vendors such as Databricks, Hortonworks, Cloudera, and MapR, have made it **economical to analyze massive data sets** to better detect behavioral patterns and optimize credit algorithms.
4. **Machine learning technologies** are being used by OnDeck and others to automate the credit assessment process.

A data lake is a large storage repository that holds raw data in its native format

Hadoop is a set of open-source algorithms for distributed storage and processing of very large data sets (or Big Data)

Banks, credit card companies, and financial services firms have collected massive data sets historically that often goes underutilized given silo'd data architectures which permeate the traditional banking industry. New technologies and architecture approaches, such as the data lake architecture (a large storage repository that holds raw data in its native format) from Hortonworks, are intended to liberalize access to a broader set of information. While some industry participants cite security, data governance, and regulations as impediments to Data Lake adoption, the broader trend suggests that Hadoop adoption and the Data Lake concept are gaining momentum.

Leading innovators have adopted advanced technology platforms to improve their ability to detect fraud, process applications, and reduce risk.

Exhibit 41: Customer usage of Hadoop and Data Aggregation Platforms

Hadoop	
JP Morgan	Fraud detection, IT risk management, and self service
Zions Bank	Fraud detection
Morgan Stanley	Investment optimization for customers
Other use cases:	New account application screening, Insurance underwriting (pay-as-you-drive policies)
Yodlee Interactive	
Biz2Credit	Data aggregation enabling credit for small businesses
ecredable	Aggregation to analyze creditworthiness of consumers
Formfree	Aggregation and instant account verification
Kabbage	Aggregation and identity/account verification for small business loans
Merchant Cash and Capital	Aggregation enabling alternative finance to businesses
miiCard	Aggregation enabling online identity verification
OnDeck	Aggregation enabling credit for small businesses
Personal Capital	Aggregation for personal wealth management
SelfWealth	Aggregation of portfolio data to minimize fees
Wise.ly	Aggregation to maximize credit rewards, manage credit
Xero	Aggregation for online accounting software for SMBs

Source: Goldman Sachs Global Investment Research

Technology enablers, like Yodlee and Intuit, illustrate the benefits of data aggregation: Yodlee and Intuit, to a lesser degree, have developed connectivity and data aggregation capabilities which power an increasing number of personal financial applications (i.e., budgeting, wealth management, tax filing, credit monitoring, and expense management). These solutions, alongside SMB accounting solutions (i.e., Quickbooks online and Xero) leverage username and password information to aggregate transaction information in real-time across an individual or business disparate financial accounts (across online banking, credit card accounts, auto loans, mortgages, etc.).

While the most common use case has historically been in personal budgeting and private wealth management applications, new use cases in SMB loans (i.e., OnDeck, Kabbage) are growing as innovators leverage user-permissioned transaction data to verify accounts, access creditworthiness, and evaluate applications.

Intuit is also now connecting its 5mn SMB customers with SMB financing options embedded within the online accounting application. While only in the single digit millions of revenues for Intuit today, we believe this could represent a meaningful growth opportunity longer term as more customers move to QuickBooks Online and the benefits of richer transactional information in the loan process become more evident.

Sizing the opportunity: \$186bn market, but low margins only put just \$1.6bn of profits at risk

We estimate the micro small business loan market is \$186bn of which 95% is on bank balance sheets: To size the market, we focus on bank loans less than \$250k, given the new entrants focus on smaller sized loans. Currently, we estimate there are \$177bn of C&I loans that had original balances below \$250k (incl. commercial card loans). With regard to the total SBA loan market, there is \$70bn of 7(a) loans outstanding (essentially C&I loans). However we estimate only 15% or \$10bn relates to loans of <\$250k size as in 2014 the average SBA 7(a) approval loan size was \$369k and 90% approvals were for loans >\$150k in size (see Exhibit 42). We assume 80% of SBA loans are originated by banks (based on 2014 statistics) and banks sell 80% of balances (weighted average of 75% and 85% government guarantees for <\$150k & >\$150k), it would imply that there are \$9bn of micro SBA loans O/S that are not on bank balance sheets (<\$250k size). Adding this amount of small business loans on bank balance sheets would imply a total market size of \$186bn (95% is on bank balance sheets).

Exhibit 42: We estimate the small business loan market to be \$186bn, including commercial credit cards

Industry C&I loans on bank balance sheets:		Micro small business loan market size	
C&I loans < \$100k original amt (\$bn)	130	SBA 7(a) regular loans O/S up to \$5mn size (\$bns)	70
C&I loans \$100k-\$250k original amt (\$bn)	48	% of SBA 7(a) regular loans O/S (<\$150k size)	10%
C&I loans \$250k-\$1mn original amt (\$bn)	121	Assumed % of SBA 7(a) O/S (\$150k-\$250k)	5%
C&I loans >\$1mn original amt (\$bn)	1,115	% of SBA 7(a) O/S (<\$250k size)	15%
Domestic C&I Loans on bank balance sheets (\$bn)	1,413	SBA 7(a) regular loans O/S (<\$250K size)	10
Micro small business loans on bank B/S (<\$250k)	177	Assumed % originated by banks	80%
<i>Small business loans as a % of C&I</i>	13%	SBA 7(a) (<\$25k) loans O/S originated by banks	8
		Assumed portion sold into secondary mkt	82%
		SBA 7(a) loans by banks but not on bank B/S	7
		SBA 7(a) loans O/S not originated by banks	2
		SBA 7(a) loans not on bank B/S	9
		Small business loans on bank B/S (<\$1mn)	177
		Total micro small business loan market size	186
		<i>% in banking system (only on bank B/S)</i>	95%
		<i>% in banking system (originated by banks)</i>	99%

Source: FDIC, Goldman Sachs Global Investment Research

Exhibit 43: Only 10% of SBA 7(a) loan \$ volume is from <\$150K sized loans

		Annual SBA 7(a) approval volume									
		2005	2006	2007	2008	2009	2010	2011	2012	2013	2014
\$mns of SBA 7(a) loans approved	7(a) <150k	3,660	3,420	3,460	2,320	1,460	1,650	1,630	1,440	1,450	1,860
	7(a) >150k	11,570	11,100	10,830	10,350	7,730	10,750	18,010	13,720	16,420	17,330
	Total 7(a)	15,230	14,520	14,290	12,670	9,190	12,400	19,640	15,160	17,870	19,190
	% under \$150k	24%	24%	24%	18%	16%	13%	8%	9%	8%	10%
Number of SBA 7(a) loans approved in mns	7(a) <150k	74	76	79	51	30	34	30	25	25	31
	7(a) >150k	22	21	20	19	11	13	24	19	21	21
	Total 7(a)	96	97	100	69	41	47	54	44	46	52
	% under \$150k	77%	78%	79%	73%	73%	73%	55%	57%	54%	59%
Avg size	7(a) <150k	\$49k	\$45k	\$44k	\$46k	\$49k	\$48k	\$55k	\$57k	\$58k	\$61k
	7(a) >150k	\$529k	\$530k	\$529k	\$551k	\$685k	\$845k	\$750k	\$726k	\$765k	\$811k
	Total 7(a)	\$159k	\$149k	\$143k	\$182k	\$223k	\$264k	\$366k	\$342k	\$385k	\$369k

Source: SBFI.org, Goldman Sachs Global Investment Research.

We estimate there is \$1.6bn of banking industry profits at risk to the banking system. This assumes a net interest margin of 3.5-5.5% (though the cycle), a modest amount of SBA origination fee income, 1.3% normalized losses and a 70% efficiency, in line with historical levels. See Exhibit 44.

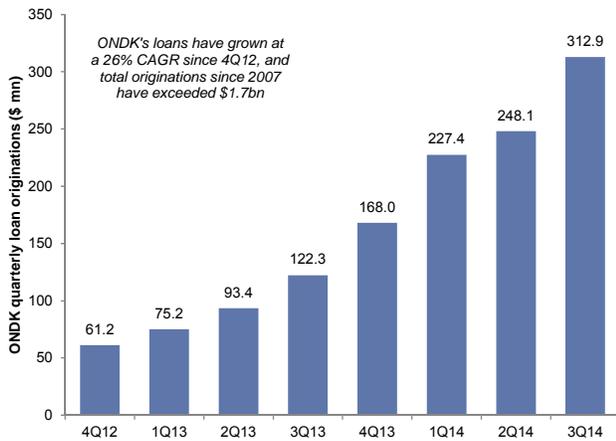
Exhibit 44: We estimate there are approximately \$1.6bn of banking industry profits at risk

Total banking sector earnings from small business lending (\$ bn)						
Normalized NIM assumed:	Key	3.5%	4.0%	4.5%	5.0%	5.5%
C&I loans <\$250k	A	177.5	177.5	177.5	177.5	177.5
Normalized NIM	B	3.5%	4.0%	4.5%	5.0%	5.5%
Net interest income	C=A*B	6.2	7.1	8.0	8.9	9.8
SBA 7(a) loan originations (<\$250k)	D	2.3	2.3	2.3	2.3	2.3
Loans sold (assume 82%)	E=D*82%	1.9	1.9	1.9	1.9	1.9
Gain-on-sale revs (assume 10%)	F=E*10%	0.2	0.2	0.2	0.2	0.2
Total revenue	G=C+F	6.4	7.3	8.2	9.1	9.9
Total expense	H	4.5	5.1	5.7	6.3	7.0
Efficiency ratio	I=H/G	70%	70%	70%	70%	70%
Pre-provision profit	J=G-H	1.9	2.2	2.5	2.7	3.0
Provision expense	K	0.0	0.0	0.0	0.0	0.0
Provision as % of loans	L=K/(D-E)	1.3%	1.3%	1.3%	1.3%	1.3%
Pre-tax profit	M=J-K	1.9	2.2	2.4	2.7	3.0
Tax expense	N	0.7	0.8	0.9	0.9	1.0
Tax rate	O=N/M	35%	35%	35%	35%	35%
Net income	P=M-O	1.2	1.4	1.6	1.8	1.9
Implied ROA	Q=P/A	0.7%	0.8%	0.9%	1.0%	1.1%

Source: Company Data, FDIC, U.S. Small Business Administration, Goldman Sachs Global Investment Research

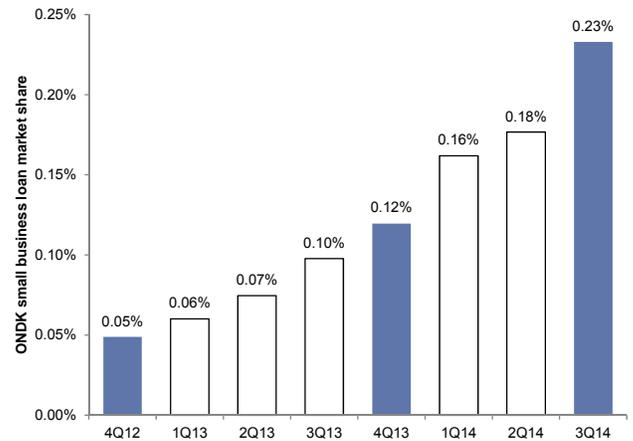
Currently, OnDeck is the only small business lending new entrant that we have data for and it has grown its quarterly origination volume to \$313mn/qtr in 3Q14 from \$61mn in 4Q12. Despite the growth, given the short-term nature of the loans, it only has \$433mn in loans outstanding, which translates to a 20bp share of the \$186bn addressable market. Despite the fast growth from a small base, there is limited profitability in the small business lending market for banks, as we only estimate a 100bp increase in non-bank market share would only decrease bank profits by \$16mn. USB, FNFG, and SNV would be most exposed given large small business concentrations. See Exhibits 45-48.

Exhibit 45: ONDK’s origination volumes have increased significantly over the past several years...



Source: Company Data, Goldman Sachs Global Investment Research

Exhibit 46: ...and we estimate it has 23bp of market share



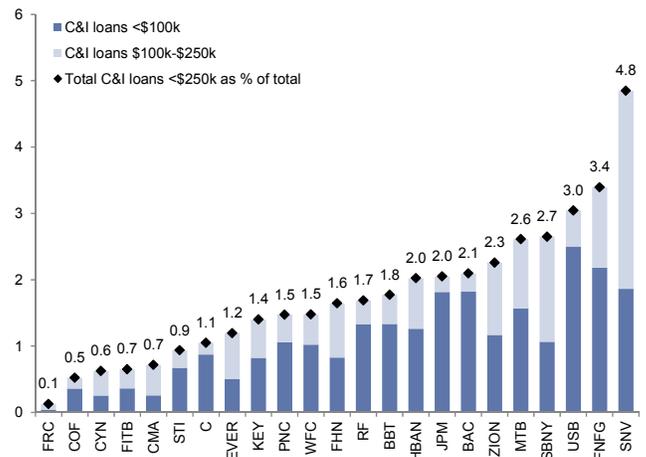
Source: Company Data, Goldman Sachs Global Investment Research

Exhibit 47: Every 1% of market share taken likely translates into a \$16mn decline in bank profitability...

Lost banking sector earnings in \$ mn	Incremental mkt shr for new entrants	Assumed normalized NIM				
		3.5%	4.0%	4.5%	5.0%	5.5%
1.0%		-12	-14	-16	-18	-19
2.0%		-25	-28	-32	-35	-39
3.0%		-37	-43	-48	-53	-58
4.0%		-50	-57	-64	-71	-77
5.0%		-62	-71	-80	-88	-97
6.0%		-75	-85	-95	-106	-116
7.0%		-87	-99	-111	-123	-136

Source: Company Data, Goldman Sachs Global Investment Research

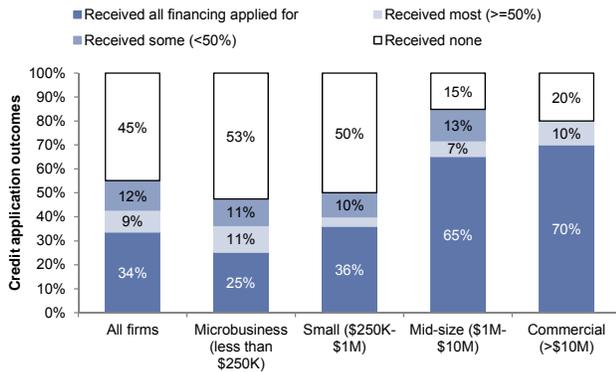
Exhibit 48: ...with USB, FNFG, and SNV potentially most exposed



Source: U.S. Small Business Administration, Goldman Sachs Global Investment Research

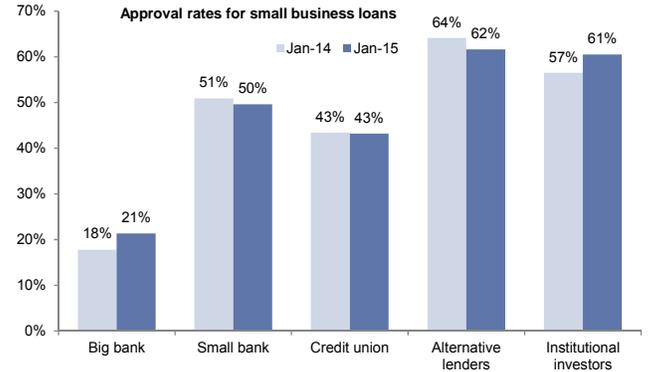
The new entrants have the potential to expand the market: While we have identified roughly \$177bn of small business loans in the banking system that could be at risk of being disintermediated (and \$186bn overall), we also believe that the new entrants could potentially expand the market for small business lending. Currently small businesses have very low loan approval rates, as in Exhibit 49, we show that over 50% of the time small businesses receive none of the financing they apply for. In a recent Fed survey, which asked small business owners that had applied for a loan why they thought they were rejected, almost 45 percent replied that banks are just not lending to their type of firm. That said, alternative lenders (i.e., the new entrants) have significantly higher approval rates (62% vs 21-50% at banks). Higher approval rates at the new entrants mean that new entrants have the potential to expand the market size. See Exhibit 50.

Exhibit 49: Small businesses have trouble accessing credit



Source: New York Fed

Exhibit 50: Alternative lenders have higher approval rates



Source: Biz2Credit Small Business Lending Index

The traditional player response: figuring out how to be more efficient, or potentially acquire: Unlike most of the P2P lenders that largely fund using third party money, a lot of the new small business lenders are self-funded, suggesting that they don't have a funding advantage over banks. As such, this leaves technology being the primary differentiating factor as to why the new entrants can conduct business in the small business area profitability. **If this technology could be mimicked, duplicated, or acquired by a bank, that could help the banks efficiency and profitability in this space.**

Leveraged lending: Banks' burden presents a non-bank opportunity

Leveraged lending has been one of the fastest growing businesses in the banking system coming out of the crisis (13% loan growth CAGR), providing US banks with much-needed earnings. However this revenue pool is being challenged as regulatory scrutiny pressures banks to step away from higher risk deals, leaving an opportunity for unregulated players such as alternative asset managers and certain brokers to take greater share (<10% share of issuance fees today). While most of the \$832bn in outstanding loans have already left US bank balance sheets, we anticipate that up to 1/3 of the ~\$3bn we estimate in deal profits at US banks are at risk of moving to non-banks. The shift in deal activity out of the banking system could ultimately facilitate deteriorating credit terms and contraction of credit availability in certain parts of the market when the environment turns.

Exhibit 51: We see just under \$1bn of US bank profits at risk

Type	Total market size	Market size type	% inside banking system	Amount in banking system	% in banking system at risk of leaving	Amount at banks at risk of leaving	Total banking profit pool at risk	Select disruptors / new entrants	Competitive advantage?
Unsecured personal lending	\$843bn	Loans O/S	81%	\$683bn	31%	\$209bn	\$4.6bn	Lending Club, Prosper	Lower capital requirement, technology
Small business loans	\$186bn	Loans O/S	95%	\$177bn	100%	\$177bn	\$1.6bn	OnDeck, Kabbage	Technology (drives time, convenience)
Leveraged lending	\$832bn	Loans O/S	7%	\$57bn	34%	\$19bn	\$0.9bn	Alternative AM, BDCs	Regulatory
Student lending	\$1,222bn	Loans O/S	5%	\$65bn	100%	\$65bn	\$0.7bn	SoFi, Earnest, CommonBond	Regulatory, technology, convenience
Mortgage origination	\$1,169bn	Ann'l volume	58%	\$678bn	100%	\$678bn	\$2.1bn	Quicken, PFSI, Freedom	Regulatory, convenience
Mortgage servicing	\$6,589bn	Loans O/S	73%	\$4,810bn	6%	\$300bn	\$0.1bn	OCN, NSM, WAC	Regulatory, cost
CRE lending	\$2,354bn	Loans O/S	56%	\$1,322bn	9%	\$118bn	\$0.8bn	Comm. mREITS, alt. lenders	Regulatory, market dislocation
Total	\$13,195bn		59%	\$7,792bn	20%	\$1,566bn	\$10.9bn		

Source: Goldman Sachs Global Investment Research estimates, S&P LCD (Outstanding reflects 4Q14)

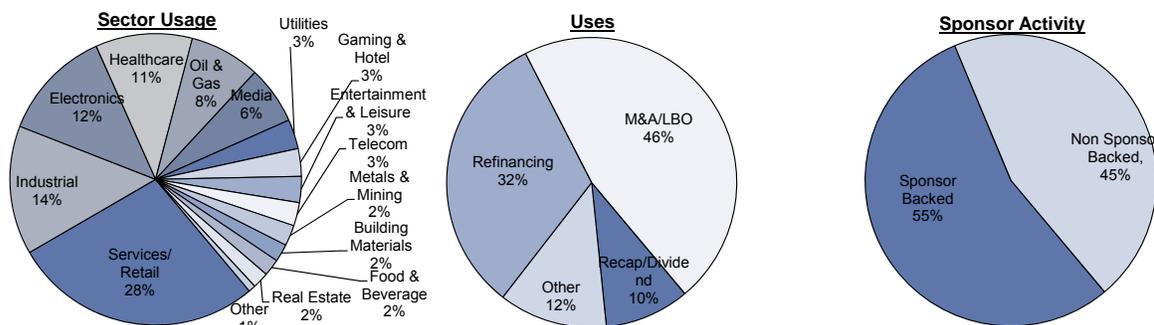
What makes a loan "leveraged"?

Issuing company has higher leverage than industry peers and junk, near junk or no rating (S&P defines as BB+ or lower or not rated)

Leveraged loans are used to finance M&A/LBOs, buybacks and dividends, and to refinance debt for higher risk companies, which are often sponsor backed: We

define leveraged lending as the process where a syndicate of banks or non-banks underwrites a loan to a business that has higher leverage than industry peers (and typically a junk, near-junk, or no credit rating). A diverse array of businesses accessed the leveraged loan market; in 2014 most were from retail/services, industrial, electronics, and healthcare. The most common usages of the funds are for M&A/Leveraged Buyouts (LBOs), refinancing debt, and dividends or buybacks. Many of the businesses that use the funds are sponsor backed, with over 50% of leveraged loan deals in 2014 involving a sponsor.

Exhibit 52: Snapshot of 2014 leveraged loan activity



Source: Goldman Sachs Global Investment Research, S&P LCD

Supply and Demand: Leveraged loans help lower the cost of capital for riskier businesses, while providing higher yielding products for investors:

Leveraged loans provide credit to companies with riskier credit as a means to lower their weighted average cost of capital (using floating rate debt versus fixed rate traditionally). While covenants tend to be stricter on a leveraged loan versus a bond covenant, the lower rate benefit can be meaningful, particularly in a lower short rates environment. A recent example of this was Dollar Tree’s (DLTR) financing of its acquisition of Family Dollar (FDO), issuing tranches of leveraged loans at lower yields 1-3% lower than the bonds it issued. These loans are then often pooled into an investment product that is ultimately purchased by investors who seek higher yields that leveraged loans possess given the higher risk profile as well as upside from higher yields once the rate tightening cycle commences.

Exhibit 53: Leveraged loans lower issuer cost of funding

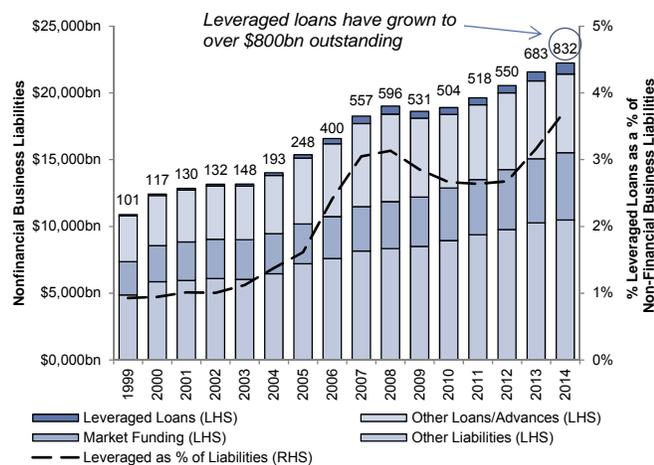
Typically loan funding mixed with debt to optimize flexibility

Example of Recent Leveraged Loan Deal				
Borrower	Dollar Tree (DLTR, BB S&P Rating)			
Use of Proceeds	Funding the \$8.5bn Acquisition of Family Dollar (FDO, Debt Priced 2/6/15)			
	Levg. Loan Tranche A	Levg. Loan Tranche B	Bond A	Bond B
Amount	\$1 billion	\$3.95 billion	\$2.5 billion	\$750 million
Spread	L+225bp	L+350bp	5.75%	5.25%
Floor	None	75 bp	None	None
Maturity	5 Year	7 Year	8 Year	5 Year
Commitment Fee	0 bp	50 bp	0 bp	0 bp
	Leveraged Loan Characteristics		Bond Characteristics	
Rate	Floating (Currently Lower)		Fixed (Currently Higher)	
Pre-Payment Allowed	After 6 Months		Longer Time Frame	
Covenants	Credit agreements tend to have stricter covenants		Indentures do not have maintenance covenants	

Source: Goldman Sachs Global Investment Research, Bloomberg

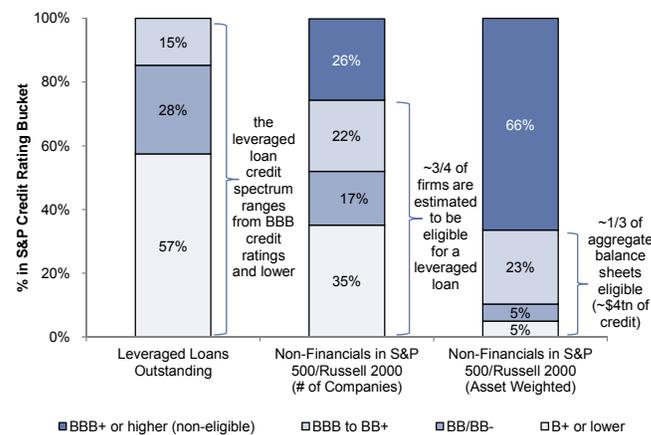
USD Leveraged loan market currently \$832bn, potential size of \$4 trillion: Leveraged lending comprises a small but increasingly prevalent way that US businesses fund themselves, comprising about 4% of the outstanding liabilities of non-financials businesses in the US (up from 1% a decade ago). Based on the percent of public companies that fall within the span of leveraged loan issuer rating (near junk or lower/not rated), we estimate that 3/4 of US companies could be eligible for a leveraged loan or 1/3 of non-financial credit, which amounts to potentially \$4 trillion or 5x the size of current leveraged loan market.

Exhibit 54: Leveraged loans ~4% of business liabilities...



Source: Fed Z1, S&P LCD, Goldman Sachs Global Investment Research.

Exhibit 55: ...with plenty of room to grow



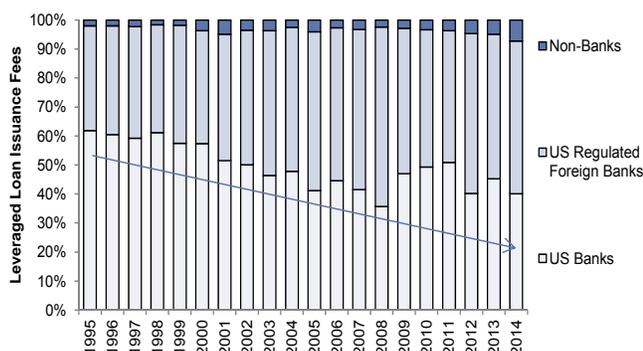
Source: Bloomberg, Fed Z1, Goldman Sachs Global Investment Research.

Banks ceding share, presenting large opportunity for non-banks

Banks have shifted to an underwrite & distribute model with CLOs, loan funds, and hedge funds stepping in as buyers. CLOs are a form of securitization where payments from loans are pooled together and passed to investors.

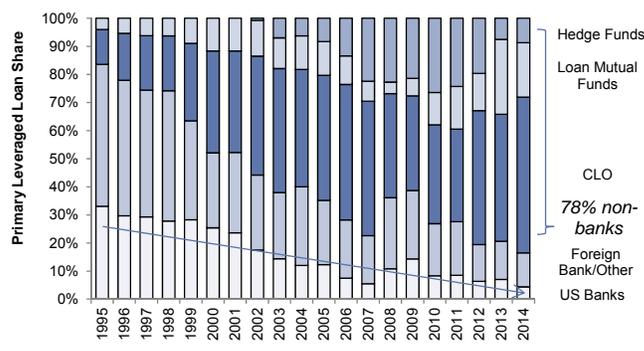
Leveraged loans are typically underwritten and sold by a syndicate of banks and brokers. In this process, banks typically take a fee, holding a portion of the loan on their balance sheets and selling the rest to investors. While US banks have historically earned the lion's share of the fees, global banks have taken up share in the past decade, with US banks' share of leveraged loan fees steadily declining to just 1/3 today. Likewise, US bank share of leveraged loans on balance sheet has fallen dramatically, with Collateralized Loan Obligations (CLOs) and loan mutual funds taking share during expansionary times and hedge funds taking share as credit quality deteriorates.

Exhibit 56: US banks have been losing share as issuers...
Non-bank fees possibly underscoring given lack of disclosure



Source: Dealogic, Goldman Sachs Global Investment Research

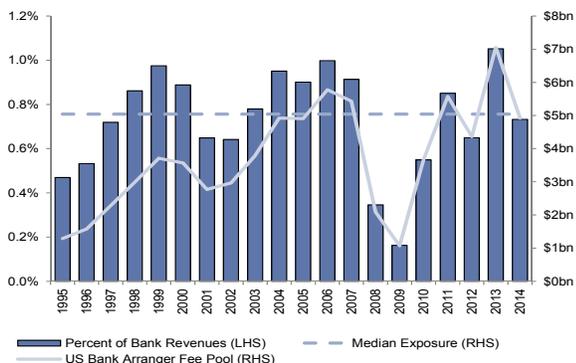
Exhibit 57: ...and have been less prevalent buyers
Share of US bank primary market declined from 30% to 4%



Source: S&P LCD, Goldman Sachs Global Investment Research

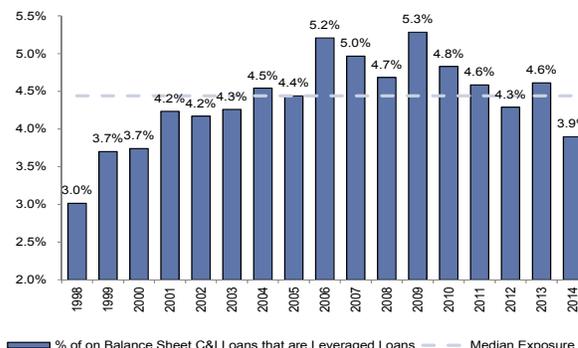
As part of their role in underwriting loans banks earn upfront and underwriting fees, commitment and facility fees for their lines of credit (which tend to be largely amortized through net interest income). While the arranger fee pool is large (~\$5bn in 2014 for US banks), the overall exposure is relatively minor with arranger fees comprising approximately 0.8% of US bank revenues in 2014 (in-line with historical median). In addition to earning fees, US banks also retain a portion of the high yielding loan issuance on balance sheet, currently estimated to comprise ~4% of US bank commercial and industrial (C&I) loans, contributing to loan growth and NII. Beyond the direct revenue impact, banks tend to look at leveraged loan deals in the context of the overall lending relationship, considering how servicing the client could lead to higher revenue in other businesses such as other capital markets and cash management.

Exhibit 58: Leveraged loan arranger fees are ~1% of total fees at US Banks
2014 arranger fees per Dealogic



Source: Dealogic, Goldman Sachs Global Investment Research

Exhibit 59: ...we estimate balances are 4% of C&I loans
Assumes 5 year rolling share if bank primary market share is equivalent to bank share of outstanding



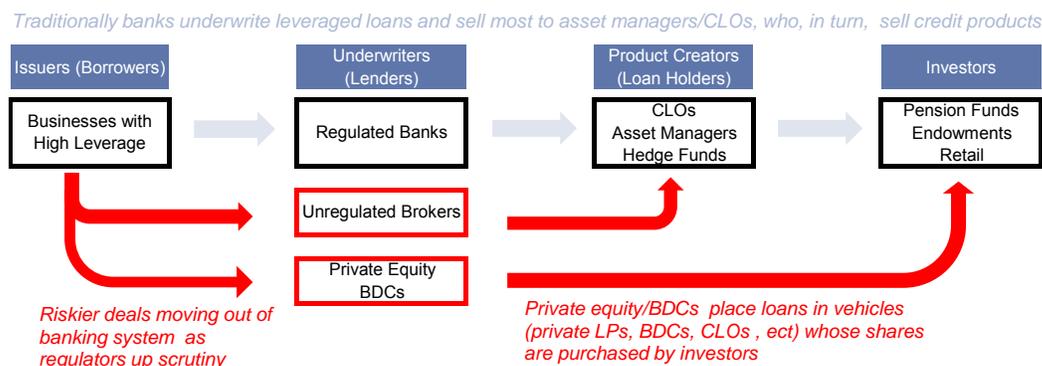
Source: Dealogic, Goldman Sachs Global Investment Research

Who is not subject to Fed or OCC oversight on leveraged lending?

- Business Development Companies (BDCs) invest in small and mid-sized businesses. They are set up with a pass-through tax structure and taxed as regulated investment companies.
- **Private Equity** Firms are public or private with a number of investment strategies/funds.
- **Brokers** that do not have US bank holding companies.

Non-banks such as alternative asset managers and US brokers not subject to oversight by the OCC or the Fed: As regulation intensifies we have seen increasing examples of non-regulated US brokers and foreign banks stepping into deals that regulated banks are unable to participate in. An example of this was a refinancing deal for KKR’s buyout of The Brickman Group, in which regulators prevented a group of regulated banks from refinancing a deal they had originated 6 months earlier with similar terms. Due to this, US broker Jefferies was able to step into the deal, alongside Australian bank Macquarie, and Japanese banks Mizuho, Sumitomo Mitsui and Nomura, with the group earning ~\$10mn in arranger fees per Dealogic from the \$825mn deal. We note that though foreign banks have gained share as US banks have begun to step off deals, the regulators have begun to take a harsher stance on foreign players, with the press reporting that Credit Suisse recently received a letter from the Fed identifying problems in its underwriting and selling practices in the leveraged loan space.

Exhibit 60: Leverage lending deals will shift to non-bank players as regulators clamp down on bank activity in space



Source: Goldman Sachs Global Investment Research

In recent years, alternative asset managers such as private equity firms and BDCs have also started to extend tens of billions of leveraged loans with strategies outlined to establish larger platforms through partnering with direct lending firms or launching direct lending funds. As the chart above shows, by entering the lending part of the leveraged lending space, private equity firms are effectively vertically integrating the supply of loans to their arms that possess loan funds and CLOs. By doing so they are able to retain lucrative management fees from selling loan products to investors such as pension funds, endowments and retail investors, which traditional leveraged lenders (banks) let pass through to alternative and traditional asset managers. While traditional asset managers could or may have already entered the space marginally, many lack the expertise in assessing distressed credit to compete on a larger scale.

Exhibit 61: Alternative asset managers, BDCs, and US brokers and foreign banks not subject to guidance are stepping in

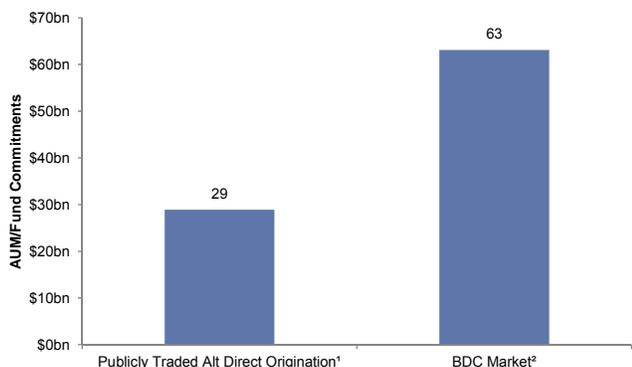
Alternative Asset Managers					BDCs	US Brokers (no Bank Holdco)
Apollo	Blackstone	KKR	Ares	Och-Ziff	Credit Suisse BDC	Jefferies
Acquired MidCap Financial (~\$2bn AUM at time) to boost direct lending platform	Through GSO (\$73bn AUM) manages funds focused on credit markets, including leveraged loans	Raised ~\$305mn for second direct lending fund per Dow Jones	Direct Lending Group has ~\$29bn AUM	Allegedly made \$234mn in loans to finance mining deals in 08-10 per WSJ	CS launching BDC as regulators limits loans banks can extend per WSJ	\$1.6bn in loans on balance sheet at FV (up 15% YoY)

Source: Bloomberg, Goldman Sachs Global Investment Research

At their 2014 investor day, Apollo sized the scale of alternative asset manager direct origination at \$60bn+ in AUM and fund commitments and outlined the build out of their direct origination platform as the latest strategic initiative for their credit business. They cited bank regulation and deleveraging as the single largest opportunity for non-bank capital providers. Likewise, its competitor, Ares, recently stated that their self-originated direct lending platform is seeing attractive opportunities given “constraints in the banking system”, helping them to generate strong returns (BDC generated a 13% 2Q14LTM return).

While a large part of the impetus to enter the space is to fill a (profitable) gap left by banks, the move is also driven by a greater focus on expanding fee generating products to try to supplement the valuation gains from their investments. Over the past 5 years, PE firms have doubled the size of their credit arms driven by an effort to generate fees and neutralize cyclicity seen in the private equity business, as well as by heightened investor demand. With street expectations for demand to exceed strong asset growth at private equity firms and BDCs and lending comprising up to 12% of credit AUM, we expect to see leveraged lending grow to continue. These factors could contribute to rapid growth in this part of the alternative investment space with Apollo expecting their direct lending platform to grow 4x near term levels in the next 5 years and 8x beyond then.

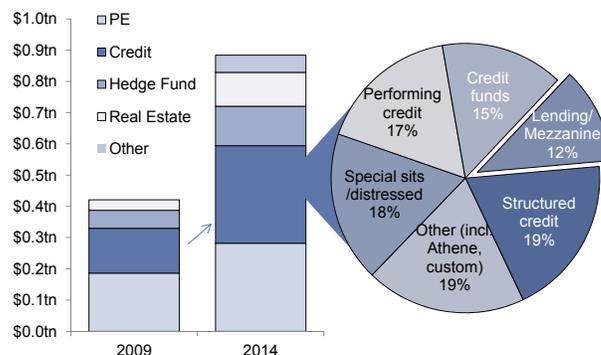
Exhibit 62: Direct lending AUM at \$60bn+ at alts...
Current scale of Alternative Asset Manager Direct Origination



¹Direct lending funds and BDCs managed by publicly traded alternative asset managers, where known (APO, ARES, BX/GSO, FIG, KKR). As of 2013 from APO Investor Day.
²Includes other public BDCs not captured in Footnote 1. As of 2013 from APO Investor Day.

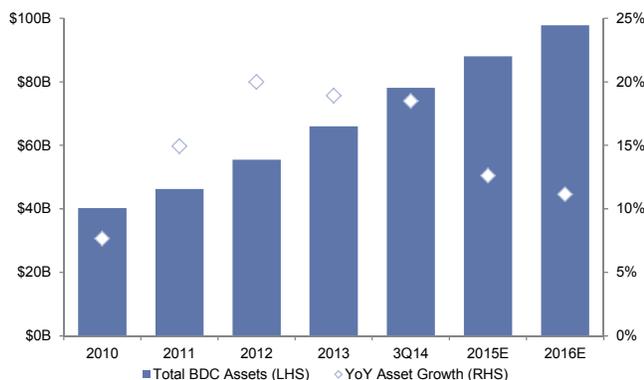
Source: APO Investor Day, Goldman Sachs Global Investment Research

Exhibit 63: ...now comprises up to 12% of PE Credit AUM
Growing piece of growing credit pie



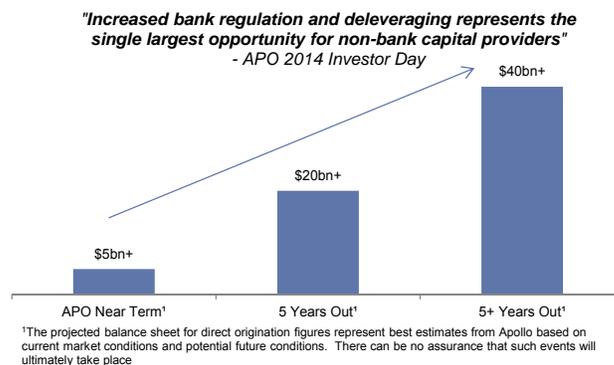
Source: Goldman Sachs Global Investment Research, Company filings

Exhibit 64: BDC growth projected to continue
Top 50 BDC assets have grown at a ~10% CAGR



Source: SNL Financial, Goldman Sachs Global Investment Research

Exhibit 65: Direct lending growth in the alternative asset management space could be substantial



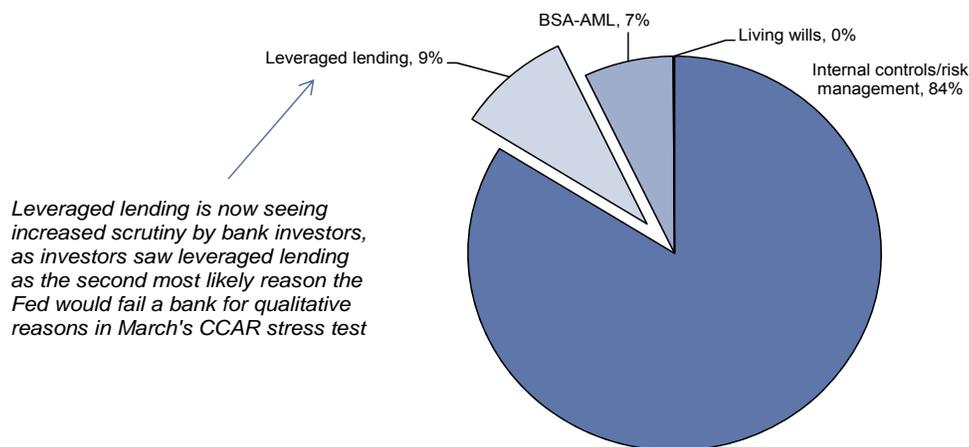
Source: APO Investor Day, Goldman Sachs Global Investment Research, SNL

Primary advantage of non-banks is lack of regulatory scrutiny

As regulators clamp down on banks' operations in the leveraged lending space, non-bank competitors have been able to pick up share due to their ability to circumvent increasingly tough regulation. Over the past few years we have seen the pace of regulation increase dramatically, with regulators updating the early 2000s guidance to provide increased clarity around how they identify a leveraged loan and what types of leveraged loans will receive enhanced scrutiny (6x+ Debt to EBITDA and enterprise value reliant commitments). Additionally, regulators will force banks to assess refinancing deals as if it were a brand new lending relationship.

While this guidance is not a rule or law barring banks from participating in leveraged loans, the fact that it is just guidance does leave interpretation risk on the table for banks. This has not gone unnoticed by bank investors who in a recent Goldman Sachs Global Investment Research Survey, said that the Fed's disapproval of a banks' leveraged lending practices is the second highest qualitative risk for the Fed barring a bank from being able to return capital coming out of the Dodd Frank Act Stress Test (DFAST) and Comprehensive Capital Analysis and Review (CCAR) over the next two weeks (see next page for further discussion).

Exhibit 66: Topics investors are most concerned about with regards to a qualitative fail
Leveraged lending is investors second largest worry



Source: Goldman Sachs Global Investment Research CCAR Survey

CCAR: The Fed's annual stress test of US banking holding companies with over \$50bn in assets. In order for firms to return capital to shareholders they must pass both the qualitative (for strong risk, control, and capital management processes) and quantitative portions of the test.

Additionally, the Fed's inclusion of leveraged lending in the guidance for this year's CCAR stress test could increase the capital levels that banks will have to allocate to these deals (see below). In this year's CCAR guidance, the Fed outlined their plan to stress leveraged loans at peak recessionary losses, which could infringe upon their ability to match non-bank returns. Given that the test assesses capital levels through the cycle, we see risk that the Fed will assume that banks will have to retain most, if not all, of the leveraged loans that they underwrite as simulated conditions deteriorate (which is what has occurred historically), accentuating the provisioning charge they'd have to take on a leveraged loan portfolio experiencing peak losses. Additionally, the lack of an ability to offload these loans would cause banks to lose most of the fees they generate from selling parts of the loan. In order to withstand the harsher resulting losses under the stress test while maintaining 5% common equity tier 1 relative to their RWAs, they will likely have to hold additional capital against the portfolio over their spot capital requirement (7% minimum for regional banks, 8-11.5% minimum for money center banks/trust banks, plus company buffers).

Exhibit 67: Holding stressed capital against leveraged loans could lower bank ROEs
 Stress test assesses the business through the cycle, which is potentially problematic

ROE Given Stress Test Capital Constraints				
(all numbers in 000s)	Bank (Regional)		Non-Bank Broker	Key
	Base Case	CCAR Stress Test	Base Case	
Leverage Loan (Pro Rata)	\$10,000	\$10,000	\$10,000	A
Through cycle NIM	2.0%	2.0%	0.8%	B
Amount sold (Institutional)	\$90,000	\$0	\$90,000	C
Upfront Fees (125bp Institutional, 63bp Pro rata)	\$1,188	\$63	\$1,188	D
Revenues	\$1,388	\$263	\$1,269	$E=(A*B)+D$
Default (Base=Cycle; Peak=Stressed)	5.6%	9.5%	5.6%	F
Loss-given-default risk	40.0%	80.0%	50.0%	G
Charge-offs %	2.2%	7.6%	2.8%	$H=F*G$
Provision (Equal Charge Offs)/NCOs	\$224	\$759	\$280	$I=A*H$
On Balance Sheet (Pro Rata, Stress take out NCOs)	\$10,000	\$9,241	\$10,000	$J=A \text{ or } A-I$
Risk Weighting (100% Commercial, 150% Unsecured)	100%	120%	100%	K
Risk Weighted Assets	\$10,000	\$11,089	\$10,000	$L=J*K$
Efficiency (Assumed)	60%	100%	60%	M
Pre-Tax	\$331	-\$759	\$228	$N=((E*(1-M))-I)$
Net Income (30% Tax Rate)	\$215	-\$531	\$160	$O=N*(1-30\%)$
Capital Required of RWA	8.5%	5.0%	7.0%	P
Capital Required	\$850	\$1,086	\$700	$Q=L*P$
ROE	25.3%	(48.9%)	22.8%	$R=O/Q$
ROE (Normal Income/ Stressed Capital)		19.8%		

Source: Goldman Sachs Global Investment Research, Dealogic, S&P LCD

We see up to \$1bn of profits leaving regulated U.S. banks

While it is tough to gauge the amount of loans at risk of leaving the banking system given the multitude of factors required in assessing the quality of a leveraged loan deal (i.e., how EBITDA is calculated), based on a broad interpretation of regulatory guidance, we estimate that ~20% of leveraged loans (19% of loans were 6x+ debt to EBITDA in 2014) are at high risk of leaving the regulated banking system with about half of leveraged loans that approach that threshold (4-6x debt to EBITDA) seeing moderate risk. This disproportionately impacts LBO deals, refinancings, and EV dependent deals.

Exhibit 68: Over 6x debt to EBITDA and large share of refinancing/LBO deals at risk of leaving the bank regulated system

Note concentration of credit terms of usages extrapolated based on available data

Debt/ EBITDA	Usage	Dividend/ Recap	Refinance	M&A	LBO	Large Corporate	Middle Market
	% in 2014	10%	37%	34%	18%	69%	31%
Under 4x	35%	4%	15%	14%	1%	28%	7%
4-5x	28%	3%	11%	11%	3%	16%	12%
5-6x	18%	1%	5%	4%	7%	11%	7%
6x+	19%	1%	5%	5%	7%	15%	4%

Lighter Risk of Scrutiny	35%
Moderate Risk of Scrutiny	46%
High Risk of Scrutiny	19%

Source: Goldman Sachs Global Investment Research, Dealogic, S&P LCD

We estimate that almost \$1bn of annual US bank profit is at risk of leaving the US banking system:

Of the ~\$6bn in estimated profit in the leveraged loan sector in 2014, we estimate that ~43% of it could be attributed to regulated US banks per Dealogic data on upfront/underwriting fees. With ~20% of deals over 6x debt to EBITDA, and almost half of deals falling in the 4-6x Debt to EBITDA bucket, we see risk that about 1/3 of deal volume could come under enhanced regulatory scrutiny prompting movement out of the regulated banking system.

The deals that are most likely to stay in the banking system (lower leverage deals) tend to get lower arranger fees and have the lower yields and fees, whereas the deals that have the highest leverage typically are more profitable on the fee and yield side. Considering the loss of these higher yield/fee revenues, which we assume fall to the bottom line at a 34% margin or the margin of pure play investment, we estimate that approximately \$1bn of annual profit at risk of leaving US regulated banks or 1/3 of estimated US bank profits.

Exhibit 69: We estimate that 1/3 of bank profits are at risk of enhanced scrutiny

Of the \$2.6bn in estimated annual profits that US banks earn as arrangers, we see ~\$1bn at risk

Global Leveraged Loan Underwriting Profit Pool					
\$mn	Under 4x Deals	4-6x Deals	Over 6x Deals	Total	
% of Deals	35%	46%	19%	100%	
2014 Volume	543,098	713,785	294,824	1,551,707	A
Arranger Fee Rate ^{1,2}	0.59%	0.90%	0.99%	0.81%	B
Fees	3,207	6,447	2,916	12,570	C=A*B
Yield ³	L + 221	L + 314	L + 400	L + 300	D
% of Loan Retained	15%	10%	10%	12%	E
Net Interest Income ⁴	1,629	2,070	1,120	4,820	F=(A*E*(D-.5%))
Profit Margin ⁵	34%	34%	34%	34%	G
Annual Profit	1,668	2,937	1,392	5,997	H=(C+F)*G

US Leveraged Loan Underwriting Profit Pool at Risk					
\$mn	Under 4x Deals	4-6x Deals	Over 6x Deals	Total	
% of Deals ¹	33%	47%	19%	100%	
2014 Volume	248,272	348,894	144,524	741,690	I
Arranger Fee Rate ^{1,2}	0.51%	0.77%	0.85%	0.70%	J
Fees	1,265	2,699	1,226	5,190	K=I*J
Yield ²	L + 221	L + 314	L + 400	L + 300	
% of Loan Retained	15%	10%	10%	12%	E
Net Interest Income ⁴	745	1,012	549	2,306	L=((I*E*(D-.5%))
Profit Margin ⁵	34%	34%	34%	34%	M
Annual Profit	693	1,280	612	2,585	N=(K+L)*M
% of Total Profit	42%	44%	44%	43%	
Risk of Scrutiny	0%	20%	100%	34%	O
Profit at Risk of Scrutiny	0	256	612	868	P=O*N

¹Allocated Deals to Buckets as Follows: Under 4x Deals (BB+ or higher effective rating), 4-6x (B to BB), 6x+ (B- or lower)

²Includes arrangement fees (ie upfront, underwriting, participation), does not include commitment, facility, margin

³Yield Based on BB/BB- for under 4x (average of 3.89 d/ebitda) and B+/B for 4-6 (average of 4.87x d/ebitda), halfway between average and max spread for B+/B for over 6x

⁴Interest earned on pro rata share (assume 100% utilized), less funding cost of 50bp

⁵Based on Profit Margins at Investment Banking Divisions who Disclose (+5% given business risk)

Source: Goldman Sachs Global Investment Research, S&P LCD

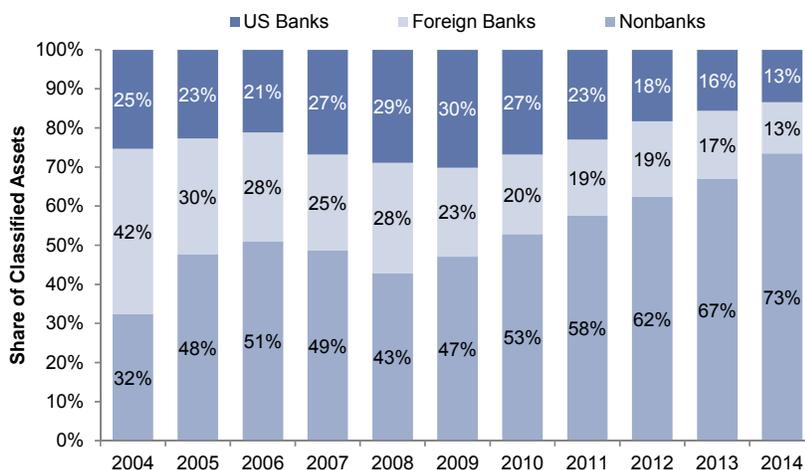
Move to non-banks could facilitate more severe cyclicity in deals outside regulated banking system

As regulators continue to up their scrutiny on US banks and foreign banks that are regulated by the Fed or OCC domestically, we suspect that lending standards will continue to tighten in the regulated space and deteriorate in the non-bank space. We have already seen a greater share of classified assets, or assets that have been designated substandard, doubtful or at loss by regulators, leave the banking system with non-banks upping their share to 73% in 2014 according to Shared National Credits data.

Banks have taken notice of the deterioration in the market. According to the most recent senior loan officer survey, a quarter of bank loan officers expect to see leveraged loan quality deteriorate “somewhat” or “significantly” in 2015. Additionally, at their recent Investor Day, JPMorgan Chase noted how syndicated middle market leveraged buyout deals were beginning to take on greater risk, so they have backed out of that market, with 2014 rankings of #3 in overall middle market syndicated deals, with a #1 ranking in the non-sponsored portion, but a #21 ranking in the sponsored portion.

Exhibit 70: Banks are taking smaller role in riskier deals

Classified assets are deemed substandard, doubtful or at loss



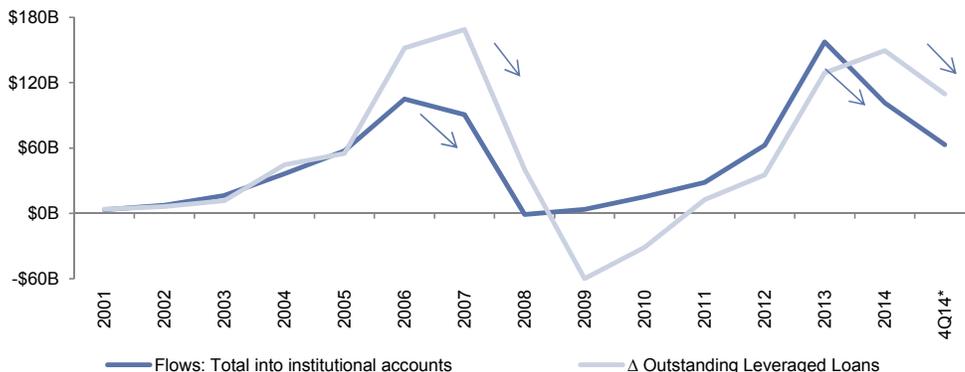
Source: Goldman Sachs Global Investment Research, SNC

Enhanced scrutiny could also impede demand

While regulators are clearly putting a concerted effort into pushing the riskiest deals out of the banking system, they have also put pressure on market participants to slow demand for leveraged loans through implemented regulation and through public commentary on the risks in the market. Should these new rules slow demand, we could see slower leveraged loan issuance given that historically slowing inflows have preceded a slowdown in issuance.

Exhibit 71: Slowing inflows have preceded issuance slowdown

The decline in the pace of inflows in 2014 has likely helped to slow leveraged issuance at the end of 2014 and into 2015 as growth in outstanding balances have started to dwindle

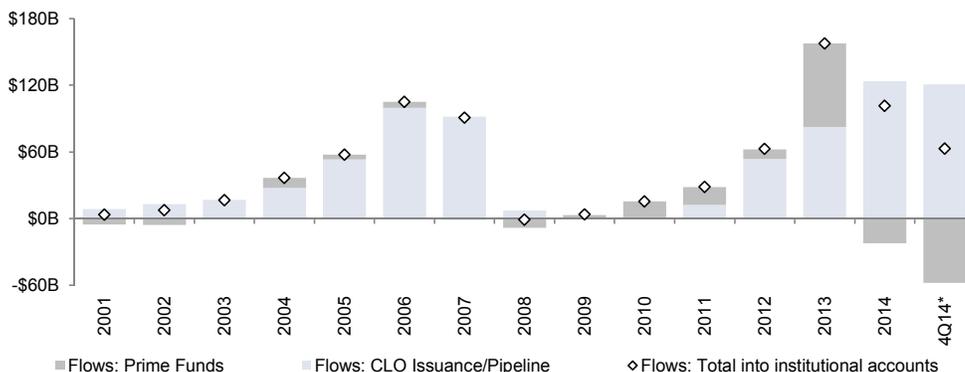


Source: S&P LCD, Goldman Sachs Global Investment Research

CLOs, or securitizations where payments from loans are pooled together and passed to investors who purchase the tranches, are the main buyer of leveraged loans and have driven the lion's share of inflows in recent years. However, regulatory changes may make it more difficult for CLOs to raise funds given that they will now have to hold 5% of capital (skin in the game rules). These rules present a headwind to CLO issuance which could impact leveraged loan issuance should demand begin to wane.

Exhibit 72: CLOs have comprised the lion's share of inflows recently

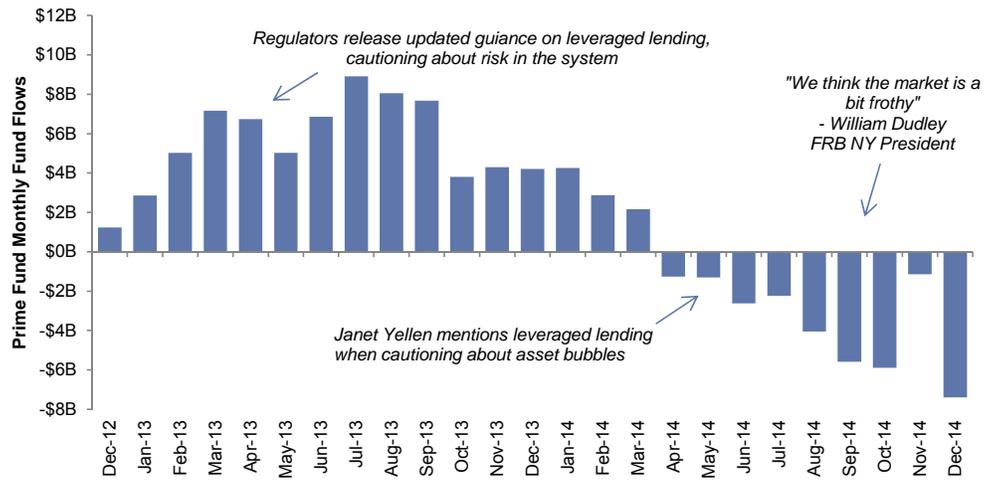
Regulatory overhang on CLOs could potentially



Source: Goldman Sachs Global Investment Research, S&P LCD

Another effective tool the Fed has in slowing the pace of demand is by cautioning the market about a possible burgeoning asset bubble in the product. While delayed expectations for rate tightening was likely the primary driver of slowing demand in the leveraged loan space from mutual funds, we believe that comments made by regulators could have possibly helped accentuate the waning demand.

Exhibit 73: Regulators comments that the leveraged loan market was becoming a bubble potentially dissuaded some investors from holding the product



Source: Goldman Sachs Global Investment Research, S&P LCD, Federal Reserve, Bloomberg

Student lending – disintermediating Uncle Sam

Student loans have grown faster than any other financial asset class since the recession, with originations growing 15% and the notional amount outstanding exceeding \$1.2 trillion (up from \$700bn in 2008). The government’s ‘one-size fits all’ Direct Loan program, which has no underwriting and offers the same interest rate to essentially all borrowers, has accounted for most of the growth, creating an opportunity for tech startups (SoFi and others) to refinance those loans. In private lending, many large banks have pulled back due to regulatory scrutiny and the relatively small size of the market (\$8bn annual originations), leaving a concentrated market for SLM (50% share). Overall, we estimate \$200mn of profit that could shift outside of the banking system over the next 3 years, primarily due to divestitures, but also partly due to refi activity of startups.

Exhibit 74: We see \$65bn of loans and \$705mn of profits at risk of leaving banks

Type	Total market size	Market size type	% inside banking system	Amount in banking system	% in banking system at risk of leaving	Amount at banks at risk of leaving	Total banking profit pool at risk	Select disruptors / new entrants	Competitive advantage?
Unsecured personal lending	\$843bn	Loans O/S	81%	\$683bn	31%	\$209bn	\$4.6bn	Lending Club, Prosper	Lower capital requirement, technology
Small business loans	\$186bn	Loans O/S	95%	\$177bn	100%	\$177bn	\$1.6bn	OnDeck, Kabbage	Technology (drives time, convenience)
Leveraged lending	\$832bn	Loans O/S	7%	\$57bn	34%	\$19bn	\$0.9bn	Alternative AM, BDCs	Regulatory
Student lending	\$1,222bn	Loans O/S	5%	\$65bn	100%	\$65bn	\$0.7bn	SoFi, Earnest, CommonBond	Regulatory, technology, convenience
Mortgage origination	\$1,169bn	Ann'l volume	58%	\$678bn	100%	\$678bn	\$2.1bn	Quicken, PFSI, Freedom	Regulatory, convenience
Mortgage servicing	\$6,589bn	Loans O/S	73%	\$4,810bn	6%	\$300bn	\$0.1bn	OCN, NSM, WAC	Regulatory, cost
CRE lending	\$2,354bn	Loans O/S	56%	\$1,322bn	9%	\$118bn	\$0.8bn	Comm. mREITS, alt. lenders	Regulatory, market dislocation
Total	\$13,195bn		59%	\$7,792bn	20%	\$1,566bn	\$10.9bn		

Source: Goldman Sachs Global Investment Research estimates

Banks have pulled back from student lending in response to government policy

Federal Family Education Loan Program (FFELP): Government-sponsored loans that were originated through private lender platforms. The program was eliminated in 2010.

Federal vs. private student loans: Student loans are a form of unsecured consumer credit used by students and families to pay for undergraduate or graduate education. The primary form of student borrowing are Stafford loans offered under the Dept of Education’s Direct Loan Program (the U.S. gov’t makes the loan directly to borrowers), which accounts for more than 90% of student loans outstanding. Private education loans offered by banks are typically used to fund any gap between Federal loans, scholarships and a family’s savings.

While the products are similar in basic forms, they have several key distinctions in terms of rates, repayment options, and forbearance. Federal loans tend to have lower interest rates than private loans as the government offers a ‘one-size fits all’ Direct Loan program with no underwriting, providing the same fixed interest rate to essentially all borrowers regardless of credit quality (4.66% for undergrads and 6.21% for graduate students for loans originated after July 2014). In contrast, private student loans are underwritten to the borrower’s credit quality (e.g., FICO score, etc.) and are typically floating rate based on a spread to LIBOR (roughly 8% on average for SLM). Federal loans also offer more flexible repayment options such as income-based repayments (limits the amount the borrower must pay each month based on one’s income) and also tend to be more generous in forbearance. As such, borrowers typically maximize the amount of Federal loan dollars

they borrow (subject to an annual limit) prior to borrowing from a private lender, and private lenders encourage borrowers to do so as well.

The private sector has played a marginal role in the overall student loan market since the elimination of the Family Federal Education Loan (FFEL) program... Prior to 2010, banks were able to originate Federal student loans, which had a 97-98% guarantee against credit risk and a fixed interest rate spread under the FFEL program. However, FFELP was eliminated in July 2010 as part of a cost savings measure outlined in the Health Care and Education Reconciliation Act, whereby the government cut out intermediaries and now only makes Federal loans directly to students, though the loans are serviced by private companies.

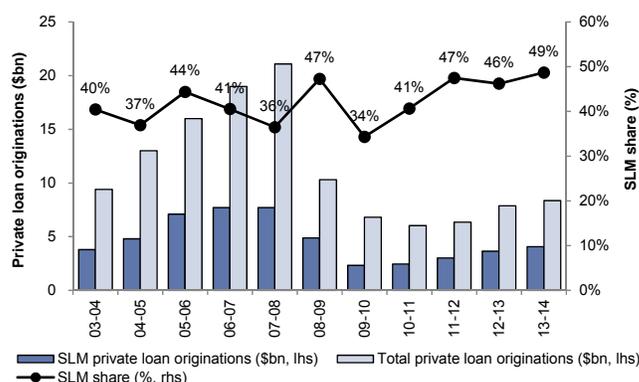
...and rise in Federal loan limits: In addition, there was a sharp annual increase in Federal loan dollars in 2007-2009 as the annual Federal loan limits increased for the first time since 1993 and jumped more than 30%, causing private loan originations to fall by 49% since reaching peak origination of \$23bn in 2008. Prior to the increase in loan limits, government loans were about 75% of the market in 2007-08, but since then have increased to account for 91% of total student loans.

Exhibit 75: Federal loan limit was raised to \$31,000 from \$23,000 in July 2008, leading to sharp drop in private originations

Annual federal loan limits (\$) for dependent students

Undergraduate (per year)	10/1/1993	7/1/2007	7/1/2008
1st year	2,625	3,500	5,500
2nd year	3,500	4,500	6,500
3rd year and above	5,500	5,500	7,500
Aggregate limit	23,000	23,000	31,000

Exhibit 76: SLM has roughly 50% market share of private loan originations



Source: Company data, Goldman Sachs Global Investment Research

Source: College Board, Goldman Sachs Global Investment Research

CFPB: Consumer Financial Protection Bureau is a government agency responsible for overseeing consumer-lending practices in the US

Larger banks have been pulling back: With private institutions shut out of the Federal student loan market and higher Federal loan limits reducing demand for private loans, many players exited or pulled back from the market, including large banks such as JPM, BAC, C, and USB. BAC exited the student lending business in 2009, with C following suit in 2010 by selling its private student loan business to DFS, and USB and JPM exiting the business in 2012 and 2013 respectively. We believe the size of the market was too small for most lenders to justify maintaining the sales and market efforts, as well as the growing compliance costs.

Private market has become concentrated: Following the pull-back by major banks, the private student loan market has become concentrated, with SLM accounting for roughly 50% of total private student loan originations. We expect SLM to maintain its leading position given that (1) large banks have not made any indications of returning to student lending, (2) its longstanding school relationships (roughly 50% of student loans are sourced via school channels, such as preferred lender lists), and (3) strong brand name synonymous with student loans. WFC remains the only large-cap bank still actively participating in originating student loans, while DFS is the other major competitor in

private loans to SLM. Regional banks such as STI, PNC, and CFG also remain active in the student lending business, with CFG identifying student loans as one of its key growth areas.

Introducing the new entrants: SoFi and CommonBond

Credit / regulatory arbitrage leads to the emergence of marketplace student lenders:

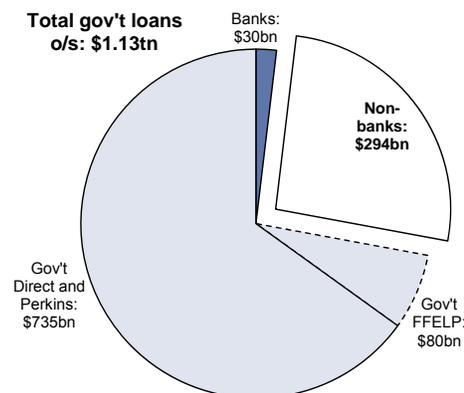
Despite the increasing concentration of the student loan market, there have been a number of new entrants such as SoFi and CommonBond, marketplace lenders that specialize in refinancing student loans into lower rates for borrowers. They then securitize these loans and sell them to third party investors (banks, asset managers, school alumni, etc.). **These platforms were able to carve out a niche in the student loan refi market by capitalizing the Federal loans' characteristic of charging a single rate to all borrowers.** The platforms thus have targeted the higher credit-quality cohort of borrowers as their offerings are much more attractive to that segment of the population. Longer-term, the companies might also become more successful refinancing private student loans given the concentration of that market and high spreads; however, we note the opportunity is smaller.

Marketplace student lenders: Marketplace student lenders originate and package these student loans into securities and sell them to investors

- **SoFi:** SoFi is a marketplace lender that was founded in 2011. Since inception, it has originated \$1.75bn of student loans. Its core business lies in offering refinancing options for graduate and undergraduate students but it also has an origination platform. For loans that it originates, SoFi does not retain any residual risk, but instead sells them to third party investors such as banks, asset managers, and individuals (e.g., school alumni). SoFi has since expanded its footprint into other areas such as mortgages and personal loans. Its variable product rates range from 1.92% to 5.42% while its fixed products have rates starting from 3.50% up to 7.49% depending on the borrower's credit quality. It offers multiple repayment options, including deferred, interest only, and full principal and interest-only payments. SoFi also offers career support services such as interview coaching and resume review for its customers.
- **CommonBond:** Like SoFi, CommonBond is a marketplace lender founded in 2011 that offers student loan refinancing options. CommonBond has made over \$100mn in loans to graduate students since inception. Its variable product rates range from 1.92% to 5.67% and fixed product rates range from 3.89% to 7.24% depending on the credit quality. CommonBond also offers several repayment options, including unemployment protection, deferred, interest-only, and full principal and interest-only payments.

Exhibit 77: Non-banks account for 26% of total FFELP loans outstanding...

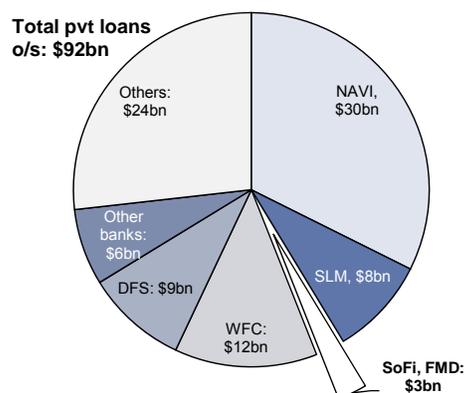
Holder of government loans



Source: Goldman Sachs Global Investment Research, DoE, Company reports

Exhibit 78: ... but only accounts for 3% of total private student loans outstanding

Holder of private student loans



Source: Goldman Sachs Global Investment Research, Company reports

Marketplace lenders' footprints are growing quickly: Although the exact market share of the marketplace lenders such as SoFi and CommonBond is difficult to size given the short history of the platforms, their originations have grown at a rapid clip, with SoFi and CommonBond surpassing \$1.75bn and \$100mn in originations since their inception in 2011.

Business model and cost advantage translating into rapid growth for marketplace lenders

Marketplace lenders are able to offer lower rates due to lower opex and capital costs: Relative to private student lenders, SoFi and CommonBond are able to offer lower rates, partly due to their marketplace approach, as the third-party investors have lower return hurdle rates than banks that originate and retain the loans on their balance sheet, and partly due to lower opex. The companies' online distribution model and reliance on 'big data' helps drive down administrative costs, while the companies also do not face the same regulatory burden (compliance and overhead costs) as traditional banks. This has allowed SoFi and CommonBond to offer lower rates to borrowers, with SoFi offering fixed loans at rates ranging from 3.50 to 7.50% vs. 5.74 to 11.85% range for an equivalent SLM fixed rate loan. (See Exhibit 79 for a comparison of student lenders). Relative to Federal loans, the companies are simply able to apply risk-based pricing to poach higher quality customers due to the government's 'one size fits all' approach.

Exhibit 79: Comparison of non-banks and banks in the student loan market

	Origination in 2014 (\$ mn)	Loans o/s (\$ mn)	Rates*	Product Offerings	Competitive advantage
Non-banks					
SoFi	1,200	1,750	Variable: 1.92% to 5.42% Fixed: 3.50% to 7.49%	Student loan refi MBA and undergraduates, new student loans to MBAs, mortgage loans, personal loans	Lower rates, cost advantage due to lower regulatory expense and technology
CommonBond	NA	100	Variable: 1.92% to 5.67% Fixed: 3.89% to 7.24%	Undergraduate and graduate student loan refi	Lower rates, cost advantage due to lower regulatory expense and technology
Earnest	NA	NA	Variable: 1.92% to 5.75% Fixed: 3.50% to 7.50%	Graduate and undergraduate student loan refi and personal loans	Lower rates, cost advantage due to lower regulatory expense and technology
Banks					
WFC	NA	11,936	Variable: 3.17% to 8.60% Fixed: 6.39% to 10.93%	New and refi loans to undergraduate and graduate students	Entrenched school relationships, large balance sheet and strong commercial banking franchise
DFS	1,200	8,510	Variable: 3M LIBOR + 3.24% and above Fixed: 5.99% and above	New loans to undergraduate and graduate students	Entrenched school relationships, strong credit card franchise
SLM	4,060	9,510	Variable: 2.25% to 9.37% Fixed: 5.74% to 11.85%	New loans to undergraduate and graduate students	Entrenched school relationships, strong brand name, scale due to more than 50% m/s in private student loan originations
CFG	620	1,924	Variable: 1M LIBOR + 2.50% and above Fixed: 5.75% and above	New and refi loans to undergraduate and graduate students	Focus on growing student banking franchise while bigger peers are pulling back

* : Undergraduate loan offerings, graduate loans for Common Bond

Source: Goldman Sachs Global Investment Research, Company reports

Sizing the opportunity: \$211bn opportunity for the new entrants, with \$705mn of bank profits at risk

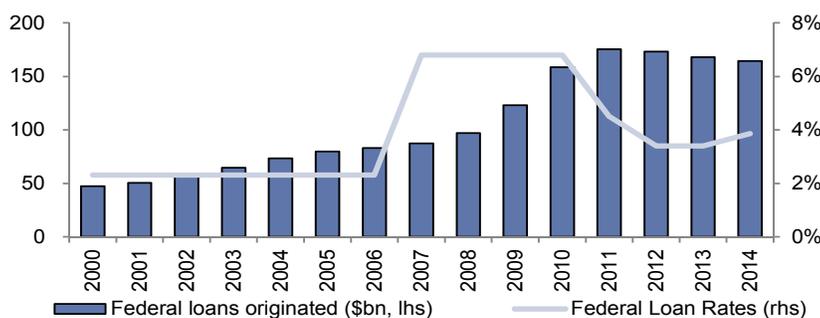
We estimate the total addressable market for new entrants at \$211bn, including \$30bn of Federal loans for refinancing (or sale) and \$35bn of private loans at banks: To size the addressable federal student loan market for the new entrants, we sum up the Direct and FFELP loans that are currently in repayment status, which currently stands at \$586bn

according to the Department of Education. Out of the \$586bn of Federal loans, we estimate that 25% are eligible for refinancing (after eliminating lower credit quality customers that couldn't be offered a cheaper rate from a market-based lender), resulting in \$147bn of addressable Federal student loan market. To size the addressable private student loan market, we take the total private student loans outstanding and apply a 30% discount to the number to exclude lower-quality (including credit-impaired) loans to arrive at \$64bn. Summing up the addressable market sizes for private and federal, we arrive at total addressable student loan market size of \$211bn for the new entrants.

We estimate the total student loan pre-tax profit pool at \$2.6bn: To size the aggregate pre-tax profit pool of the student lenders, we disaggregate the addressable market into private and federal, as the ROA profiles on the two types of loans differ widely due to the underwriting practices. According to NAVI's securitized federal loan portfolio, average yield on the federal loans was roughly 5%, with 74% of loans yielding more than 4%. After accounting for credit and opex, we arrive at pre-tax ROA of 70 bps for federal loans. Private loans on average yield 8-9%, and after accounting for credit and opex, pre-tax ROA comes out to 2.5%. Net-net, we estimate the total industry pre-tax profit pool at \$2.6bn.

Total after-tax profit pool at risk for banks is \$705mn: Out of \$1.2 trillion of student loans outstanding, \$65bn (\$35bn of private and \$30bn of federal) of loans currently reside in banks. Using the same approach as the addressable market sizing exercise (70 bps pre-tax margin for federal and 250 bps for private), we arrive at an after-tax profit of \$705mn at risk for the banks. However, while the entire profit pool in banks may be at risk in the long-term, we estimate that only 10% of private student loans (\$200mn profit) may shift to non-banks in the near-term, as these loans are already underwritten to the borrower's credit quality and are thus less attractive to refinance. In addition to the marketplace lenders refinancing banks loans, the largest run-off Federal loan portfolio is held by NAVI (\$100bn), a non-bank, whose loans are hypothetically at risk to refinance to marketplace lenders, but the company is also well positioned to acquire run-off FFELP portfolios from banks, such as its recent acquisition of WFC's portfolio.

Exhibit 80: Federal loan rates have come down from a peak of 6.8% to 3.86% in 2013-14, with corresponding increase in federal loan originations



Source: Goldman Sachs Global Investment Research, Company reports

Exhibit 81: We estimate the total addressable market for refinancing student loans at \$211bn

Addressable federal loan market (\$bn)		Legend
In-school	145.3	A
Grace	28.7	
Repayment	350.0	
Deferment	86.5	
Forbearance	86.7	
Default	42.5	
Other	4.7	
Total direct loans o/s	744.4	
<hr/>		
Total FFEL loans in repayment	236.2	B
Total FFEL loans	387.6	
Total Federal loans in repayment	586.2	C = A + B
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Proportion of credit-worthy borrowers eligible for refi*	25%	D
Total addressable federal market	147	E = C*D
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Total private loans outstanding	92	F
Lower quality (incl. credit-impaired) loans	30%	G
Total addressable private market	64.4	H = F*(1-G)
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Total addressable student market	211.0	I = E + H

Source: Goldman Sachs Global Investment Research, FICO blog, Dept of Ed

Exhibit 82: We estimate the total after-tax bank student profit pool at risk of \$705mn

Total student profit pool (\$bn)		Legend
Total private loans outstanding	92.0	A
Lower quality (incl. credit-impaired) loans	30%	B
Addressable private loans	64.4	C = A*(1-B)
Total addressable federal loans	146.6	D
<hr/>		
Pre-tax ROA on private loans	2.5%	E
Pre-tax ROA on federal loans	0.7%	F
<hr/>		
Private pre-tax profit	1.6	G = C*E
Federal pre-tax profit	1.0	H = D*F
Total pre-tax profit	2.6	I = G + H
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Total private held by banks	35	J
Total federal held by banks	30	K
Total student loans held by banks	65	L = J + K
<hr/>		
Bank private pre-tax profit at risk	0.9	M = E*J
Bank federal pre-tax profit at risk	0.2	N = F*K
Bank total pre-tax profit pool at risk	1.1	O = M+N
Tax Rate	35%	P
Bank total after-tax profit pool at risk	0.7	Q = O*(1-P)

Source: Goldman Sachs Global Investment Research, FICO blog

Marketplace lenders can be powerful disruptors but there are risks

Marketplace lenders can increase prepayment risk for banks: We believe that the marketplace lenders such as SoFi and CommonBond can potentially be significant disruptors in the student loan market given their competitive advantages arising from less regulatory scrutiny, technology, lower cost and ongoing migration of consumers from offline to online. While their origination capabilities are likely to be limited in the near-term due to incumbents’ entrenched school relationships, their refinancing products may present significant prepayment risk for the banks. The heightened risk may force banks to either offer lower rates and/or more flexible repayment options to mitigate the prepayment risk, which may lead to greater earnings volatility.

But there are risks: However, there are also significant risks for the new entrants, as they are likely to increasingly draw the attention of regulatory agencies such as CFPB as they grow their footprint, especially as the new entrants lack the balance sheet stability that banks such as WFC offer and execution capabilities and entrenched school relationship of SLM. SoFi and CommonBond also have significant execution risks, as they gradually shift their business model towards originating loans rather than refinancing. Potential diversification into other lending businesses (e.g., SoFi’s expansion into mortgages and personal loans) may also present significant over-diversification risks.

Exhibit 83: Historical Sources of Student Aid and Loans (\$bn)

\$bn, in current dollars	Academic Year															5-yr CAGR	Share
	00-01	01-02	02-03	03-04	04-05	05-06	06-07	07-08	08-09	09-10	10-11	11-12	12-13	13-14			
Total Federal Grants	10.8	13.3	15.4	17.1	17.9	17.6	18.4	20.6	24.9	41.1	49.1	46.2	46.4	48.9	14%	20%	
Total Federal Loans	34.4	37.6	43.0	49.6	54.8	58.0	61.4	68.8	86.5	100.2	106.2	107.3	103.0	95.9	2%	39%	
Federal tax benefits and work study	5.1	5.6	6.3	6.8	7.1	7.4	7.6	7.7	11.7	17.4	20.1	19.7	18.4	19.7	11%	8%	
Total Federal Aid	50.4	56.5	64.7	73.5	79.8	83.0	87.4	97.0	123.1	158.8	175.4	173.3	167.8	164.5	6%	66%	
Institutional, State and Private Grants	26.8	28.5	30.5	33.7	36.9	40.3	44.3	47.7	51.9	56.1	61.2	65.5	69.3	73.7	7%	30%	
State- and Institution-Sponsored Loans	1.1	1.2	1.3	1.4	1.5	1.8	2.1	2.1	1.6	1.7	1.7	1.7	1.6	1.7	1%	1%	
Private Loans	4.0	5.0	7.0	9.4	13.0	16.0	19.0	21.1	10.3	6.8	6.0	6.4	7.9	8.4	(4%)	3%	
Total Non-Federal Loans	5.1	6.2	8.3	10.8	14.5	17.8	21.1	23.2	11.9	8.5	7.7	8.0	9.4	10.0	(3%)	4%	
Total Loans, Grants and other Aid	82.2	91.2	103.4	118.0	131.2	141.1	152.8	167.9	186.9	223.4	244.3	246.8	246.6	248.3	6%	100%	
Total loans	39.5	43.8	51.2	60.5	69.3	75.8	82.5	92.0	98.4	108.7	114.0	115.4	112.5	106.0	4%	43%	
Total grants	37.6	41.8	45.9	50.8	54.8	58.0	62.7	68.3	76.8	97.3	110.3	111.8	115.7	122.7	11%	49%	
Federal tax benefits and work study	5.1	5.6	6.3	6.8	7.1	7.4	7.6	7.7	11.7	17.4	20.1	19.7	18.4	19.7	19%	8%	

Source: College Board, Goldman Sachs Global Investment Research

Mortgage banking – the rise (and fall) of the non-bank

Non-banks’ share of mortgage originations is poised for further growth, while their growth in mortgage servicing is likely to remain stalled. In just three years, large non-banks’ share of mortgage origination has nearly doubled to 42%, and we see another 5-8 pts of bank share shifting in the near-term (\$179mn-\$286mn of total \$2.1bn profit pool at risk). Non-banks have grown even faster in mortgage servicing, more than tripling their market share to 27% with \$1.4 trillion of servicing (out of \$10 trillion U.S. mortgage loans) changing hands in the past 3 years. The shift has been driven by three key factors: 1) increased capital requirements (particularly for mortgage servicing rights); 2) cost; and 3) banks’ willingness to shed ‘non-core’ assets.

Exhibit 84: \$2.2bn of mortgage banking profit may be at risk

Type	Total market size	Market size type	% inside banking system	Amount in banking system	% in banking system at risk of leaving	Amount at banks at risk of leaving	Total banking profit pool at risk	Select disruptors / new entrants	Competitive advantage?
Unsecured personal lending	\$843bn	Loans O/S	81%	\$683bn	31%	\$209bn	\$4.6bn	Lending Club, Prosper	Lower capital requirement, technology
Small business loans	\$186bn	Loans O/S	95%	\$177bn	100%	\$177bn	\$1.6bn	OnDeck, Kabbage	Technology (drives time, convenience)
Leveraged lending	\$832bn	Loans O/S	7%	\$57bn	34%	\$19bn	\$0.9bn	Alternative AM, BDCs	Regulatory
Student lending	\$1,222bn	Loans O/S	5%	\$65bn	100%	\$65bn	\$0.7bn	SoFi, Earnest, CommonBond	Regulatory, technology, convenience
Mortgage origination	\$1,169bn	Ann'l volume	58%	\$678bn	100%	\$678bn	\$2.1bn	Quicken, PFSI, Freedom	Regulatory, convenience
Mortgage servicing	\$6,589bn	Loans O/S	73%	\$4810bn	6%	\$300bn	\$0.1bn	OCN, NSM, WAC	Regulatory, cost
CRE lending	\$2,354bn	Loans O/S	56%	\$1,322bn	9%	\$118bn	\$0.8bn	Comm. mREITS, alt. lenders	Regulatory, market dislocation
Total	\$13,195bn		59%	\$7,792bn	20%	\$1,566bn	\$10.9bn		

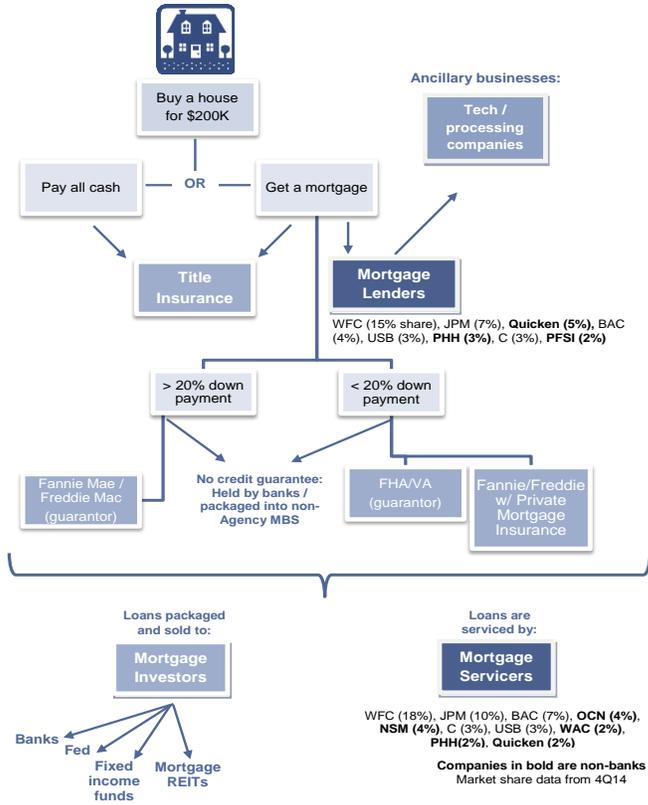
Source: Goldman Sachs Global Investment Research estimates.

MSRs: A mortgage servicing right is a financial asset created by the capitalization of future cash flows from servicing a mortgage. It is generated when a mortgage is sold in the secondary market and is the primary component of a mortgage lender’s gain on sale income.

Mortgage banking is the activity of originating a mortgage and selling it to 3rd parties (primarily in the form of mortgage backed securities – MBS), or alternatively holding it for investment. In this report, we focus on loans that are originated for sale (as opposed to investment), as they comprise 80-90% of the market. Mortgage banking generates three primary revenue streams: 1) gain on sale income (revenue from selling a loan), 2) interest income (carry on the loans prior to being sold), and 3) servicing income (paid by MBS investors to the servicer). The majority of gain on sale income is non-cash and is simply the capitalization of the mortgage’s future servicing income stream (mortgage servicing right – MSR). There are several different channels to sell a mortgage depending on the product (conventional = Fannie Mae/Freddie Mac, government = Ginnie Mae, which are low down-payment FHA/VA loans, and non-conforming/non-agency MBS, which are mostly jumbo loans and previously subprime). The economics for the originator/servicer vary by product and how the mortgage was acquired (correspondent vs. retail), though we do not delve into the detailed differences in this report.

Exhibit 85: Mortgage Finance Ecosystem

Role of mortgage lenders and mortgage servicers in the ecosystem



Industry participant	Role	Economics
Mortgage Lenders	Lends money to home buyers for purchasing a house.	Holds loan on balance sheet and earns interest OR sells in secondary mkt for gain-on-sale income and ongoing servicing fee (or 'servicing released') -Avg gain on sale = 1-2% loan amount
Mortgage Servicers	Collects borrower payments and distributes to appropriate parties (investors, municipalities, insurance cos, etc.) as primary servicer or subservicer. Also default prevention/foreclosure activities.	25-50 bps (annualized) of loan amt on recurring basis. Ancillary fees for other services, such as late payments, modifications, etc.

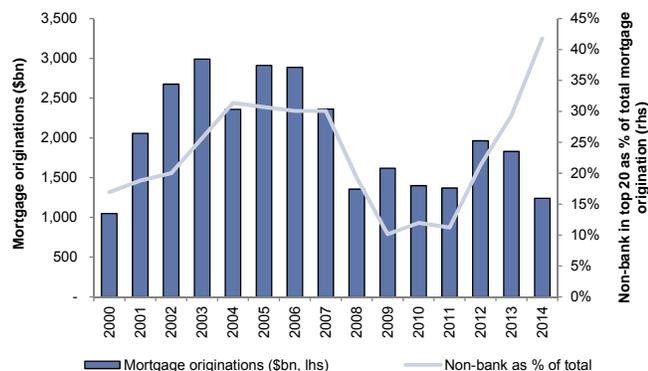
Source: Goldman Sachs Global Investment Research

Non-bank origination has doubled in just 3 years and is at an all-time high

In the years leading up to the Financial Crisis, mortgage origination was relatively concentrated amongst the top 5 lenders (WFC, BAC, JPM, Countrywide, and Washington Mutual), who collectively accounted for 50-60% of market share. Non-banks were also active in the market, making up 17-31% of total origination volume with Countrywide responsible for more than half of non-banks' total originations. However, the market has become increasingly fragmented and non-banks' share has doubled to 42% as banks have pulled back. Some of the most notable entrants / disruptors are Quicken, PennyMac, and Freedom Mortgage, who experienced the fastest pick-up in market share. Combined market share of the three players jumped from 4.9% in 2012 to 9.0% in 2014 with their aggregate annual origination volume growing by 16% from \$96bn in 2012 to \$111bn in 2014.

Exhibit 86: Non-banks' share of mortgage originations have risen from 10% in 2009 to 42% in 2014

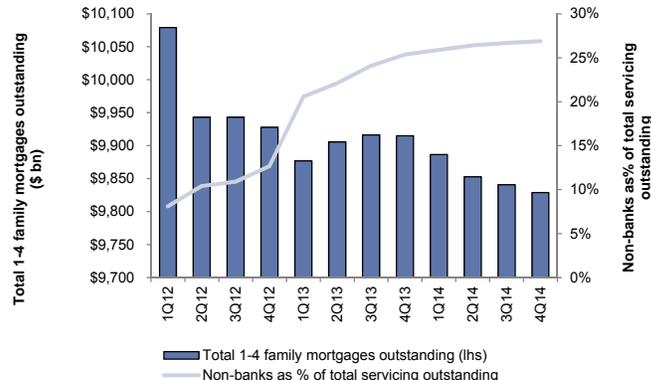
Total mortgage originations (\$bn) and non-banks' share



Source: Inside Mortgage Finance, Goldman Sachs Global Investment Research

Exhibit 87: ... while top non-banks' share of servicing has grown to 27% in 4Q14 from 8% in 1Q12

Total mortgage servicing o/s (\$bn) and non-banks' share



Source: Inside Mortgage Finance, Goldman Sachs Global Investment Research

FHA/VA: Government mortgage insurers who provide explicit gov't guarantee on loans packaged into Ginnie Mae MBS.

- Quicken Loans:** Quicken's market share has quintupled to 5% since 2008, and it is now the third largest mortgage originator in the U.S. (and the largest online lender), driven by the pull back of large banks, its own lack of legacy problems (no legacy subprime exposure or significant litigation issues), and partly because of the refi boom. Quicken originates loans directly to consumers through its website and call centers and does not operate branches. The company has aggressively advertised in recent years and has positioned itself as a superior customer service experience with a faster origination process, leveraging its technology platform. Quicken also has a correspondent lending operation, whereby it serves as a wholesale provider of funding to smaller community banks. Founded in 1985, the company is private and has been operating under its current brand name since 1999.
- PennyMac Financial Services (PFSI):** Founded by former Countrywide executives in 2008, PFSI is one of the newer entrants in the mortgage banking industry and has grown to be the 8th largest mortgage originator in the U.S. (3rd largest correspondent originator). It has benefited from the pull back by BAC, C, and others from correspondent lending and FHA/VA loans in particular. Its origination market share has doubled from 1% in 2012 to 2% in 2014, and 60% of its originations are FHA/VA vs. only 20% for the industry. PFSI has a synergistic relationship with the REIT, PennyMac Mortgage Trust (PMT), that provides it with tax advantages and a lower cost of capital.
- Freedom Mortgage Corp:** Freedom Mortgage Corp (founded in 1990) has recently grown to be the 10th largest mortgage originator in the U.S., with its market share doubling in just a year from 1% in 2013 to 2% in 2014. It originated \$24bn of loans in 2014, up 387% from \$5bn in 2012. Freedom specializes in originating FHA and VA loans. Similar to PFSI, the company has a synergistic relationship with Chery Hill (CHMI) where it provides CHMI with the right to co-invest at least 65% in monthly flow excess MSRs and at least 40% in 3rd party bulk acquisitions.

Exhibit 88: Non-banks as % of total peaked at 31% in 2004 then dropped post-Crisis as banks acquired distressed non-bank originators such as Countrywide, but has since recovered to 42% driven by new entrants / disruptors

Lender	Mortgage origination market share														
	2000	2001	2002	2003	2004	2005	2006	2007	2008	2009	2010	2011	2012	2013	2014
WFC	7%	9%	12%	16%	13%	13%	14%	12%	17%	26%	28%	26%	27%	20%	15%
JPM	7%	9%	6%	9%	8%	6%	6%	9%	14%	10%	12%	11%	10%	10%	7%
Quicken Loans Inc.	0%	0%	0%	0%	0%	0%	1%	1%	1%	2%	2%	2%	4%	4%	5%
BAC	5%	4%	3%	4%	6%	5%	6%	8%	14%	24%	22%	11%	4%	5%	5%
USB	0%	0%	1%	1%	0%	1%	1%	1%	3%	3%	4%	4%	5%	4%	3%
PHH	0%	0%	0%	0%	0%	2%	1%	2%	2%	2%	3%	4%	3%	3%	3%
C	2%	2%	3%	4%	5%	5%	6%	8%	9%	5%	5%	5%	3%	4%	3%
PFSI	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	1%	2%	2%
Flagstar Bank	1%	2%	2%	2%	1%	1%	1%	1%	2%	2%	2%	2%	3%	2%	2%
Freedom Mortgage Corp.	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	1%	2%
GMAC	2%	4%	5%	6%	6%	5%	6%	4%	4%	4%	5%	4%	0%	0%	0%
STI	1%	1%	1%	1%	1%	2%	2%	3%	3%	3%	2%	2%	2%	2%	1%
Countrywide	6%	7%	9%	15%	15%	17%	16%	17%	10%	0%	0%	0%	0%	0%	0%
Wachovia	0%	1%	1%	1%	2%	2%	0%	0%	4%	0%	0%	0%	0%	0%	0%
WaMu	5%	9%	12%	15%	11%	9%	7%	6%	2%	0%	0%	0%	0%	0%	0%
Total originations (\$bn)	\$1,048	\$2,058	\$2,675	\$2,992	\$2,359	\$2,911	\$2,888	\$2,364	\$1,355	\$1,619	\$1,399	\$1,370	\$1,953	\$1,771	\$1,169
Non-banks as % of total	17%	19%	20%	26%	31%	31%	30%	30%	19%	10%	12%	11%	21%	29%	42%

Source: Inside Mortgage Finance, Goldman Sachs Global Investment Research

Non-bank share of servicing has tripled in 3 years, but the pace is decelerating

Mortgage servicers: collect borrower payments and distribute cash to appropriate parties, including MBS investors and tax authorities.

Similar to originations, a significant amount of mortgage servicing has shifted outside of the banking system, with specialty servicers such as OCN, NSM, and WAC as main beneficiaries. Relative to large banks, these companies typically specialize in servicing mortgage pools with a higher concentration of delinquencies, using loan modification programs for borrowers to stay in their homes and remain current on their payments, though they have also begun to service a higher percentage of 'cleaner' pools and new originations. The combined market share of the specialty servicers has more than doubled from 5% in 2012 to 10% in 2014 with their combined 1-4 family servicing portfolio unpaid principal balance (UPB) rising from \$496bn to \$998bn in the same period. MSR purchases by non-banks grew at a CAGR of 172% from 2010 to \$701bn in 2013, but the pace slowed in 2014 due to increased regulatory scrutiny on larger specialty servicers such as OCN.

- **Ocwen (OCN):** Founded in 1988, OCN has since grown to be the fourth largest mortgage servicer in the U.S., driven by a series of acquisitions including Rescap's \$171bn and OneWest's \$78bn MSR portfolios and pull-back by banks following more onerous capital requirements on MSR holdings. OCN has historically enjoyed a significant cost advantage over its peers (cost to service a delinquent loan is 70% lower than industry average) due to offshoring (74% of its employees are based in India) and proprietary servicing technology. OCN specializes in servicing "high-touch" delinquent loans, but also has been originating mortgage loans through its Homeward platform since November 2011.
- **Nationstar (NSM):** NSM is the 5th largest mortgage servicer in the U.S., with 3.8% market share as of 4Q14. Similar to other servicers, NSM's rapid growth since its founding in 1994 has been fuelled by bulk MSR acquisitions, with notable acquisitions including BAC's \$215bn and Aurora Bank's \$63bn MSR portfolios. It also originates loans via retail, wholesale, and correspondent channels.
- **Walter Investment Management (WAC):** WAC is a specialty servicer that is focused on servicing reverse and credit-sensitive mortgage loans. WAC's notable MSR portfolio acquisitions include BAC's \$84bn and Rescap's \$42bn MSR portfolios. It also engages

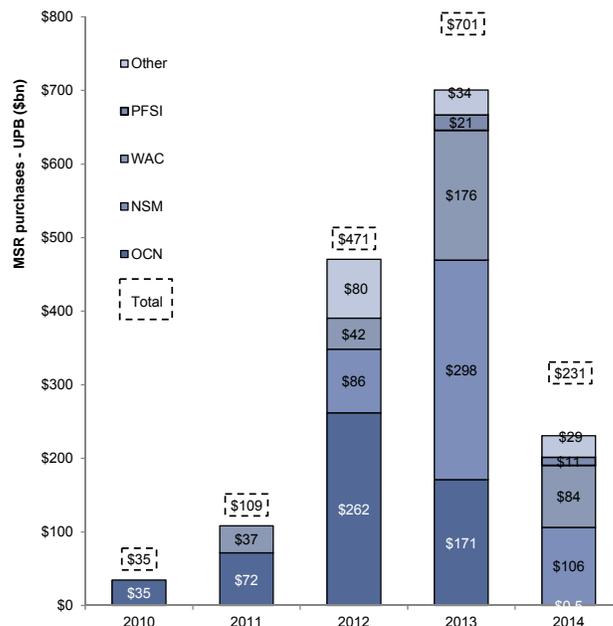
in loan origination and asset management businesses. As of 4Q14, WAC was the 8th largest servicer in the US with more than \$220bn in UPB.

Exhibit 89: Non-banks have grown at the expense of banks, who are decreasing exposure to servicing
Top 20 servicers' UPB (\$bn)

Rank	Servicer	Total Servicing (\$bn)			% Growth y/y	Mkt Share 4Q14
		4Q12	4Q13	4Q14		
1	WFC	\$1,873	\$1,829	\$1,752	(4%)	17.8%
2	JPM	\$1,102	\$1,017	\$949	(7%)	9.7%
3	BAC	\$1,332	\$811	\$693	(15%)	7.1%
4	OCN	\$204	\$455	\$397	(13%)	4.0%
5	NSM	\$208	\$391	\$377	(3%)	3.8%
6	C	\$452	\$396	\$325	(18%)	3.3%
7	USB	\$264	\$270	\$290	7%	2.9%
8	WAC	\$85	\$202	\$224	11%	2.3%
9	PHH	\$185	\$227	\$226	(0%)	2.3%
10	Quicken Loans	\$80	\$141	\$161	15%	1.6%
11	STI	\$145	\$137	\$142	4%	1.4%
12	PNC	\$136	\$129	\$122	(6%)	1.2%
13	BBT	\$102	\$113	\$123	8%	1.2%
14	LoanCare		\$84	\$112	33%	1.1%
15	PFSI	\$28	\$78	\$106	36%	1.1%
16	Provident Funding	\$63	\$92	\$89	(3%)	0.9%
17	FITB	\$77	\$83	\$79	(4%)	0.8%
18	Flagstar	\$82	\$83	\$80	(4%)	0.8%
19	HSBC	\$86	\$74	\$66	(10%)	0.7%
20	Caliber Funding	\$11	\$52	\$68	30%	0.7%
Top 20 mortgage servicing		\$6,515	\$6,662	\$6,380		
Top 20 mkt share of total		66%	67%	65%		
Non-bank as % of total		13%	25%	27%		

Source: Inside Mortgage Finance, Goldman Sachs Global Investment Research

Exhibit 90: MSR purchases by non-banks have been on the rise in recent years, though the pace slowed in 2014 due to increased regulatory scrutiny
MSR purchases by non-bank servicers (\$bn)



Source: SNL Financial, Goldman Sachs Global Investment Research

Regulation, cost advantage, and pull-back by banks leads to the return of non-banks

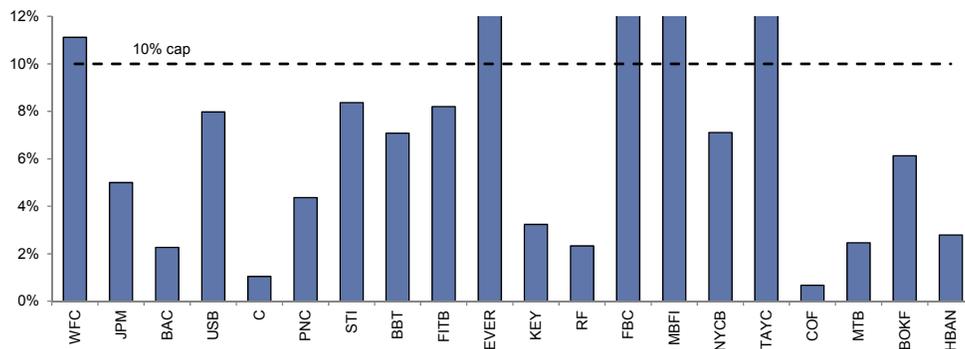
We attribute the growing influence of the new entrants/disruptors in mortgage banking and servicing to the following: (1) less regulatory burden than the larger lenders, (2) cost advantages, and (3) little or no exposure to problematic legacy assets. Some non-bank originators, such as Quicken Loans, also offer superior convenience to borrowers through its more efficient online platform, which reduces the turnover time for mortgage applications.

1) Non-banks have benefited from increased bank capital requirements for mortgages

Under the Basel III capital rules (currently being phased in), banks face more onerous limits on the amount of MSRs they can count towards their regulatory capital. This has reduced larger banks' appetite to become larger correspondent lenders, and it could also induce community banks to sell more of their production as the rules are phased in. We expect non-banks to be well-positioned to buy production from smaller institutions given that they will not poach the community banks' customer relationships (vs. other correspondent lenders, which are large banks). Given that Basel III is on course for full implementation by 2018-19, we believe that the servicing market share shift to the non-banks may continue in the near-term as larger banks reposition their portfolios towards assets that would fortify their capital positions under the new rules. However, we also note that since many banks are already below the 10% cap for holding MSRs, the pace of MSR portfolio shift may decelerate.

Correspondent lenders: Correspondent lenders acquire mortgages on a wholesale basis from smaller lenders and then securitize the loans and service them on an ongoing basis

Exhibit 91: Several larger banks face capital constraints in growing their MSR's further
MSRs as % of Tier 1 Capital as of MRQ



Note: EVER, FBC, MBFI, and TAYC are not drawn to scale

Source: Goldman Sachs Global Investment Research, Company reports

Exhibit 92: More onerous regulatory capital treatment of MSR's under Basel III have reduced the attractiveness of correspondent lending for larger banks, which could spur further MSR sales and encourage smaller banks to sell more originations to non-bank correspondents

Current capital standards	Basel III standards
<p>Capital Exclusion</p> <ul style="list-style-type: none"> MSRs are limited to 50% of Tier 1 capital for banks, 100% for savings and loans. No limitation on combined balance of MSR's, deferred tax assets, and significant investments in shares of unconsolidated financial institutions. 10% haircut on face value 	<p>10% cap on MSR contribution to capital. 15% cap on combined balance of MSR's, deferred tax assets, and significant investments in shares of unconsolidated financial institutions.</p> <p>Haircut removed</p>
<p>Risk Weight</p> <ul style="list-style-type: none"> Included MSR's have a 100% risk weight Excluded MSR balance (10%) haircut subject to dollar-for-dollar capital requirement 	<p>Included MSR's have a 250% risk weight</p> <p>Excluded MSR balance subject to dollar-for-dollar capital requirement</p>

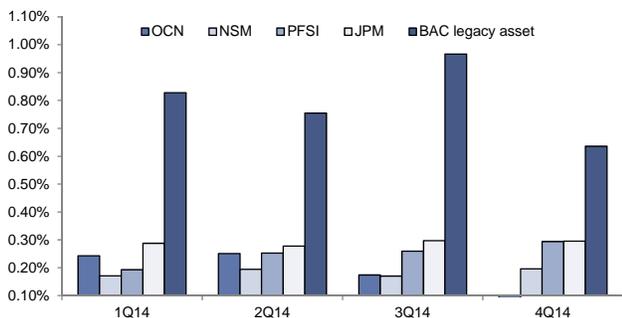
Source: Goldman Sachs Global Investment Research

2) Non-banks have a servicing cost advantage

One of the primary drivers behind the specialty servicers' growing presence is their more efficient cost structure. Specialty servicers' cost to service a non-performing loan is roughly 70% lower than that of banks as illustrated by OCN's \$270 historical cost per non-performing loan vs. \$900 on average for banks. We attribute this advantage to (1) technology, (2) know-how developed from focusing on a single line of business, and (3) lack of combined legacy systems, particularly as a result of bank M&A. Servicing expense as % of UPB also paints a similar picture as the metric ranges from 17 bps to 25 bps for specialty servicers vs. 30 bps for JPM and 90 bps for BAC's legacy servicing book. The CFPB's 'Single Point of Contact' rule, which requires servicers participating in modification programs to provide each homeowner with a single employee contact to help them during delinquency to avoid foreclosure, has also increased the cost burden of servicing delinquent mortgages and has further widened the cost advantage gap for non-bank specialty servicers whose operations were already aligned with the requirements.

Exhibit 93: Non-banks have a more efficient servicing cost structure

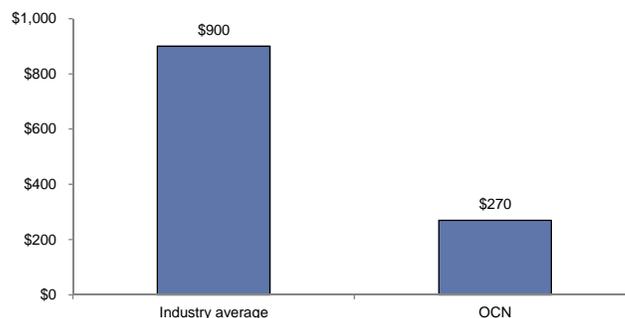
Servicing expense as % of UPB



Source: Goldman Sachs Global Investment Research, Company reports

Exhibit 94: OCN's cost to service a delinquent loan is roughly 70% lower than those of banks

Servicing cost per delinquent loans for banks vs non-banks



Source: Goldman Sachs Global Investment Research, Company reports

Litigation fast fact:

Banks have collectively incurred \$105bn in mortgage-related litigation expense

3) Bank shift away from 'non-core' assets

Banks emerged from the Financial Crisis with non-core assets after a series of high-profile mergers and acquisitions (e.g., JPM + Washington Mutual; WFC + Wachovia; BAC + Countrywide). As a result of the deals, banks ended up with a large number of unprofitable, non-core customers with limited to no cross-sell opportunities, high operational costs and regulatory risk due to high level of delinquent mortgages that resulted from loose underwriting standards. For instance, the five largest US banks (WFC, BAC, C, JPM, and MS) have collectively incurred \$105bn (BAC alone accounted for \$57bn) in mortgage-related litigation expense since 2011 due to these problematic non-core legacy mortgage assets. Banks have since concentrated on reducing their exposure to the non-core assets and a pull-back from mortgage lending and servicing. The banks' de-emphasis of mortgage lending has led to a more fragmented market that has provided non-banks with an opportunity for growth.

Sizing the opportunity: \$2.1bn of mortgage origination profit and \$137mn of servicing profit at risk

\$2.1bn of mortgage origination profit may be at risk for the banks

We estimate the total mortgage industry origination revenue and profits at \$18bn and \$5.5bn respectively. To size the market, we begin with total MBS issuance of \$1.05 trillion (total mortgage origination of \$1.17 trillion). We then apply the industry's weighted average gain-on-sale margin of 1.5% to arrive at revenue from loan sales, though we note that the margin can vary across originators as correspondent loans have lower margins than retail. To derive net interest income, we assume that new loans are typically held on the balance sheet for 12-months before being securitized and apply net interest margin of 3%. Net-net, we arrive at an aggregate revenue pool of \$18bn and pre-tax profit pool of \$5.5bn for mortgage production, equivalent to 30% pre-tax margin.

Out of the total addressable mortgage origination market of \$1.2 trillion, we estimate that banks currently account for 58%, equivalent to \$678bn of originations per year. **However, we estimate that non-banks will only take additional 5-8 pts of market share (\$179mn-\$286mn profit) in the near-term given that non-bank's share of origination is already at peak levels.**

\$137mn+ of banks' mortgage servicing profit at risk

We estimate the aggregate mortgage servicing revenue and profit pool at \$21bn and \$4.6bn respectively: To size the market, we take a top-down approach and begin with total

1-4 family MBS outstanding, which stood at \$6.6 trillion as of 4Q14 according to SIFMA. We then apply the servicing fee, which we disaggregate into agency and non-agency loans (30 bps and 44 bps average fee respectively). Servicing non-agency loans commands higher fees and margins than agency as servicers are compensated for the extra credit risk as non-agency loans do not have the implicit backing of the government. For servicing expense, we assume expense / UPB of 25 bps based on an analysis of banks and non-banks, though we note this metric varies widely across servicers. Net-net, we arrive at an aggregate profit pool of \$4.6bn at 22% pre-tax margin.

To derive the amount of servicing profit at risk for banks from a shift to non-banks, we note that mortgage servicing cannot shift on its own (other than originations gradually moving to non-banks); instead, it must be sold by banks. According to NSM, the active pipeline of servicing opportunities currently exceeds \$300bn, which we view as the amount at banks that are at risk of leaving. Applying a blended servicing fee of 32 bps and pre-tax margin of 22%, we estimate the total banking servicing profit pool at risk at \$137mn after-tax (assuming tax-rate of 35%). Given that banks are selling the servicing for a reason (i.e., it's not profitable for them), this estimated profit loss for the banks could end up being smaller.

Exhibit 95: We estimate industry-wide mortgage servicing profits of \$4.6bn with \$137mn at risk for banks, and industry-wide mortgage origination profits of \$5.5bn with \$2.1bn at risk for banks
 Aggregate profit pool of mortgage servicing and origination market

Mortgage servicing profit pool (\$bn)		Legend	Mortgage origination profit pool (\$bn)		Legend
Agency MBS outstanding	5,632	A	Mortgage originations	1,169	Q
Non-agency MBS outstanding	957	B	% of originations securitized	90%	R
Total MBS outstanding	6,589	C = A+B	Mortgage originations sold	1,052	S = Q*R
Agency servicing fee	0.30%	D	Wtd avg gain-on-sale margin	1.47%	T
Non-agency servicing fee	0.44%	E	Revenue from loan sales	15.4	U = T*S
Total average servicing fee	0.32%	F = I / C	Avg loans held for sale	97.4	V = Q/12
Agency servicing revenue	16.9	G = A*D	Net interest margin	3.00%	W
Non-agency servicing revenue	4.2	H = B*E	Net interest income	2.9	X = V*W
Total servicing revenue	21.1	I = G+H	Total production revenue	18.4	Y = U + X
Expense / UPB	0.25%	J	Expense / origination	1.22%	Z
Expense	16.5	K = C*J	Expense	12.9	AA = Z * S
Pre-tax income	4.6	L = I - K	Pre-tax income	5.5	BB = Y - AA
Pre-tax / UPB	0.07%	M = L / C	Pre-tax / origination sold	0.52%	CC = BB / S
Pre-tax margin	22%	N = L / I	Pre-tax margin	30%	DD = BB / Y
Bank portfolio that could shift in the next few years	300.0	O	Bank m/s of total originations	58%	EE
Bank total after-tax profit pool at risk	\$137mn	P = O*F*N*65%	Bank total after-tax profit pool at risk	2.1	FF = BB * EE * 65%
			Estimated bank m/s shift in the near-term	5% - 8%	GG
			Bank profit pool that could shift in near-term	\$179 - \$286mn	HH = BB * GG * 65%

Source: Goldman Sachs Global Investment Research, Company reports, IMF

Origination shift to continue, but servicing shift could stall

We expect non-banks' market share of mortgage origination and servicing to continue expanding in the near-term as banks limit their mortgage banking due to regulatory capital constraints and focus on core customers. However, we note that some banks remain quite active in mortgage lending, such as WFC, and JPM also increased its correspondent lending in 4Q, which was surprising considering that borrowers acquired via correspondent lending are not necessarily the banks' core customers compared to direct

retail originations (the loans are sourced from third parties and correspondent lenders are just wholesale providers of balance sheet)

As in the case of OCN, we expect non-banks' growth in servicing to decelerate due to elevated regulatory scrutiny, which will be a headwind for servicing transfers from banks to non-banks.

OCN – a case study of growing too large too quickly

As a case study into the sustainability of servicing shifting to non-banks, we analyze OCN, a specialty servicer founded in 1988 that grew too large too quickly for both operational and regulatory comfort. OCN's aggregate servicing UPB grew more than 8x from \$50bn in 2009 to \$411bn in 3Q14, driven by notable acquisitions such as the acquisition of \$78bn OneWest and \$256bn Rescap MSR portfolios. However, OCN's rapid growth arguably came at the expense of increased regulatory scrutiny, with New York Department of Financial Services (NYDFS)' Superintendent Benjamin Lawsky alleging OCN backdated letters to borrowers and the California Department of Business Oversight suing OCN for failing to provide loan files that the regulator had requested.

Although OCN was able to settle both litigations (\$150mn and \$2.5mn in fines for NYDFS and California lawsuits respectively and additional compliance costs), the added scrutiny has forced OCN to curtail portfolio acquisitions the near-term (approval from the NYDFS is now required), significantly dampening its growth outlook. In addition, OCN has also disclosed its plan to sell its agency servicing book (\$239bn of UPB or 58% of its portfolio), where it has less of an advantage over other servicers, which would significantly reduce its servicing revenue stream. Even after the settlement with both agencies, OCN still has pending litigations, including major mortgage bond investors' (BLK, MET, and PIMCO) allegations of OCN failing to properly collect payment on \$82bn of homes. Since peaking at \$59.97 in October 25, 2013, OCN's share price has fallen by 86%, compared to the 20% rise in the S&P over the same period (through March 2).

Commercial real estate lending – niche opportunity for non-banks, but market structure largely unchanged

Banks’ share of CRE lending has been relatively stable, though they have pulled back from some riskier pockets due to regulation, creating an opportunity for commercial mortgage REITs which have nearly doubled in size since 2011, as well as alternative asset managers. We believe non-banks are also poised to take advantage of a coming wave of CMBS maturities that might not be eligible for refinancing from banks or CMBS due to cash flow shortfalls. Overall, we estimate that \$800mn+ profits could shift from the banking system to non-banks over the next few years, and an additional \$350mn of profit could move to non-bank lenders from the CMBS maturity wave over 3-4 years.

Exhibit 96: We see \$118bn of loans and \$0.8bn of profits at risk of leaving banks

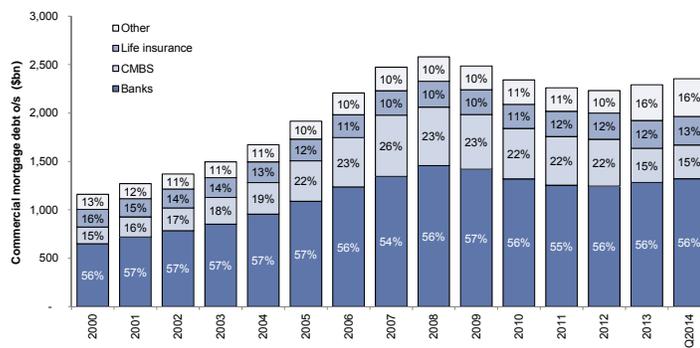
Type	Total market size	Market size type	% inside banking system	Amount in banking system	% in banking system at risk of leaving	Amount at banks at risk of leaving	Total banking profit pool at risk	Select disruptors / new entrants	Competitive advantage?
Unsecured personal lending	\$843bn	Loans O/S	81%	\$683bn	31%	\$209bn	\$4.6bn	Lending Club, Prosper	Lower capital requirement, technology
Small business loans	\$186bn	Loans O/S	95%	\$177bn	100%	\$177bn	\$1.6bn	OnDeck, Kabbage	Technology (drives time, convenience)
Leveraged lending	\$832bn	Loans O/S	7%	\$57bn	34%	\$19bn	\$0.9bn	Alternative AM, BDCs	Regulatory
Student lending	\$1,222bn	Loans O/S	5%	\$65bn	100%	\$65bn	\$0.7bn	SoFi, Earnest, CommonBond	Regulatory, technology, convenience
Mortgage origination	\$1,169bn	Ann'l volume	58%	\$678bn	100%	\$678bn	\$2.1bn	Quicken, PFSI, Freedom	Regulatory, convenience
Mortgage servicing	\$6,589bn	Loans O/S	73%	\$4,810bn	6%	\$300bn	\$0.1bn	OCN, NSM, WAC	Regulatory, cost
CRE lending	\$2,354bn	Loans O/S	56%	\$1322bn	9%	\$118bn	\$0.8bn	Comm. mREITs, alt. lenders	Regulatory, market dislocation
Total	\$13,195bn		59%	\$7,792bn	20%	\$1,566bn	\$10.9bn		

Source: Goldman Sachs Global Investment Research estimates

Outlining the traditional CRE lenders

Commercial real estate loans are used to purchase, refinance or improve commercial properties ranging from office to apartment buildings and warehouses. Commercial banks, CMBS and life insurance companies have been the primary source of traditional CRE lenders, though the market is highly fragmented with a regional focus.

Exhibit 97: Non-banks account for roughly 43-46% of commercial mortgage debt outstanding



Source: Federal Reserve Bank, Goldman Sachs Global Investment Research

Introducing the new disruptors in CRE lending

Among the fastest growing sources of non-bank CRE financing are commercial mortgage REITs (many of which are sponsored by private equity funds). Commercial mREITs grew significantly following the recession due to an increased amount of borrower distress and a lack of competition for more complex transactions. More recently, competition has lead non-banks to stretch for more opportunities including construction loans and European assets.

Starwood Property Trust (STWD) focuses largely on transitional loans with exposure to office, hospitality and NYC construction loans, and has a growing focus on Europe. STWD’s origination platform is viewed as the industry-leading franchise, with \$5.7bn in CRE loans. The company primarily relies on its syndicate desk to create leverage by selling the “A-piece” of its loans to banks, as opposed to securitizations. Additionally, STWD also owns a CMBS special servicer and residual investment vehicle (LNR) and a loan conduit that generates gain on sale income.

Colony Financial (CLNY): Historically a distressed real estate equity and debt investor, CLNY has ramped up its transitional lending platform with a focus on smaller loans (\$10mn-\$50mn range) than peers. The company’s loan portfolio totals \$3.9bn, primarily first mortgage and mezzanine loans. CLNY also has a \$550mn investment in a single family rental business, Colony American Homes, and has a proposed transaction to combine with its private sponsor Colony Capital and internalize its management.

Blackstone Mortgage Trust (BXMT) concentrates solely on originating first mortgage and mezzanine loans primarily in the office, lodging, residential, retail, industrial, and healthcare sectors. The company targets stabilized or transitional asset of \$50mn-\$100mn in size and has a total loan portfolio of \$2.2bn.

Additionally, we are seeing other players expand beyond their traditional businesses to CRE lending to take advantage of the expected wave of CMBS maturities in 2016-17. Notably, Two Harbors (TWO) and PennyMac Financial Services (PFSI) announced their plans to enter the CRE lending space this year. TWO is traditionally a residential mortgage REIT focused on agency and non-agency MBS, while PFSI is a prominent non-bank mortgage originator and servicer.

Exhibit 98: Major non-bank CRE lenders have more than doubled assets since 2011...

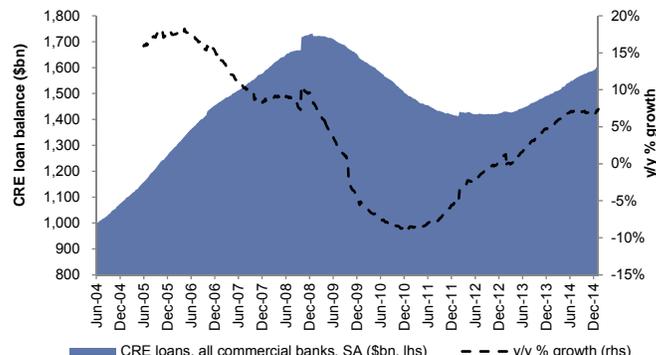
Non-bank CRE lenders total assets (\$bn)



Source: SNL Financial, Goldman Sachs Global Investment Research

Exhibit 99: ...while commercial banks have grown at less than 10% per year in recent years

CRE loans held by commercial banks



Source: Federal Reserve Bank, Goldman Sachs Global Investment Research

Exhibit 100: Key metrics of major non-bank CRE lenders

	CLNY	STWD	BXMT	Others	Total
Portfolio metrics (\$mn)					
Investment portfolio	3,250	6,094	3,921	22,660	35,925
Total CRE loans	2,216	5,672	3,906	8,164	19,957
Leverage	0.5x	1.0x	1.7x	NA	1.1x
% First mortgage loans	30%	55%	95%	NA	NA
% Mezz & B-note loans	19%	30%	5%	NA	NA
% Non-performing/distressed loans	8%	NA	NA	NA	NA
% CMBS	NA	3%	NA	NA	NA
% Equity & other investments	32%	12%	0%	NA	NA
% International	15%	13%	16%	NA	NA
Wtd. avg. loan LTV	50-75%	64%	64%	NA	50-75%
Strategic focus	Distressed loans including FDIC portfolios. Shifting to originated transitional loans (\$10-\$50mn loan size). \$550mn investment in single-family rental.	Transitional loans, w/ focus on office & hospitality. Recently increased exposure to NYC mixed use construction.	First mortgages on stabilized or transitional assets (\$50-\$100mn loan size)	Other non-banks include: ARI, Crexus, NRF, NCT, STAR, RAS, ACRE, ABR	

Source: Goldman Sachs Global Investment Research, Company reports

Competitive advantage of non-banks: lower capital constraints and ability to underwrite more complex deals

Ability to underwrite more complex transactions: Commercial mortgage REITs’ sweet spot for lending are properties that have cash flow problems (such as a large vacancy caused by a tenant leaving or a renovation project). These loans are ‘transitional’ in nature with floating-rate, shorter-term first mortgages with LTVs of 50-80% and 2-3 year terms. Typically, the minimum debt service coverage ratio is 1x with some catalyst to grow cash flow coverage to 1.3x or higher.

Given the more intensive underwriting and more onerous capital requirements (150% Basel III risk-weighting for ‘high velocity commercial real estate’ for banks), banks, life insurance companies, and conduit lenders are not competitive in the niche, and the competition drops even further for loans < \$25m, which is now a larger focus for both companies. Non-bank lenders, such as CLNY and STWD are also more willing and able to take down an entire loan at an LTV of 75-80; whereas, a bank might only be able to hold a 50 LTV loan. As such, a commercial mortgage REIT might be able to underwrite the transaction more quickly than a bank that needs co-lender agreements across several banks. STWD’s construction loan on Hudson Yards is an example of how a commercial mortgage REIT can receive a 200+ bps interest rate premium over a consortium of banks because of its ability to underwrite the transaction faster (a few weeks vs. 6 months).

Exhibit 101: Illustrative returns on a transitional loan originated by STWD

	Tranche	Owner	LTV	Loss position	Yield	Value (\$mn)	Interest pmts (\$mn)	Notes
<div style="border: 1px solid black; padding: 5px; width: fit-content;"> \$100mn property / \$75mn loan Borrower rate = L+ 4.75% </div>	A Note	Sold by lender (STWD)	0-50%	Last	L + 2.00%	50	1.1	assumes LIBOR = 0.25%
	B Note	Retained by lender (STWD)	50-75%	Second	L + 10.25%	25	2.6	assumes LIBOR = 0.25%
	Equity	Borrower	75-100%	First	Property value appreciation		25	3.8

Source: Goldman Sachs Global Investment Research, Company reports

Depending on the gross yield and risk of the first mortgage, the companies typically sell the ‘A piece’ of the loan, manufacturing a mezzanine ‘B piece’ for themselves with an LTV of 50-75 and a 10%+ yield, as opposed to the gross yield on the entire loan of ~5%. To the

HVCRE: High Volatility Commercial Real Estate loans are defined as any credit facility used to finance commercial real estate acquisition, development, or construction, with LTV higher than 80%, and doesn't maintain at least 15% of borrower contributed capital over the life of the project

extent that AAA CMBS spreads tighten, the market interest rate on the 'A note' declines and the companies can generate a higher yield on the mezz piece for themselves.

Basel III: Similar to other areas where banks have pulled back (like residential mortgage), banks face capital constraints on CRE lending under Basel III. New risk weightings require banks to hold more capital against 'high velocity commercial real estate loans' (HVCRE), which are essentially CRE construction loans, which makes those loans less profitable for banks and creates a niche opportunity for alternative lenders to fill the funding gap.

Exhibit 102: Basel III risk weightings imply HVCRE loans are riskier, requiring banks to hold more capital against those investments

Risk weighting by loan categories

Loan category	Risk weighting	Notes
Multifamily	50-100%	Most multifamily loans are assigned a risk weighting of 100%, except 'pre-sold construction loans' which are viewed as less risky and weighted only 50%.
HVCRE loans	100-150%	Most ADC loans are assigned 150% weighting because they are considered riskier investments (unless specific qualifications are met.)
Non-HVCRE / non-multifamily loans	100%	All non-multifamily, non-ADC loans are treated as general corporate exposure and only weighted 100%.

Source: Goldman Sachs Global Investment Research, Federal Reserve

CCAR constraints: In addition to the higher risk-weighting for HVCRE loans, banks have been actively constraining their construction and development loan growth due to the severity of losses applied to CRE in the Fed's annual CCAR stress test. While the Federal Reserve doesn't publish CRE loss estimates by type, ZION has regressed the Fed's 2014 CCAR results and estimates that the Fed applies a high-teens to nearly 30% cumulative nine quarter loss rate on construction and development lending. Given that this would require significant equity under a stressed period as well as in normal times (higher RWAs under Basel III), ZION as well as other large bank lenders have been backing away from C&D lending, either through reduced commitment growth or participating out risk to smaller banks not constrained by CCAR.

Sizing the opportunity: \$118bn of loans and \$842mn of profit may be at risk for banks

Since 2000, non-banks have accounted for roughly 45% of the commercial real estate lending market, holding more than \$1.0 trillion of the aggregate \$2.4 trillion of commercial real estate debt outstanding as of 3Q14. We expect non-banks to continue to have attractive lending opportunities over the next five years as more than \$1.5 trillion of CRE debt will mature over the next 5 years (comparable to the past 5 years), and banks face capital constraints under Basel III.

We estimate \$118bn of CRE loans \$842mn of profits at risk for banks

Our estimate for the amount of profit at risk assumes 5% of CRE loans outstanding is transitional in nature based on an assumption that total commercial property vacancy rates are 10-15% and that 30-50% of loans on those properties would have higher than average vacancy causing cash flow problems that make banks less likely to originate the loan. For the profits at risk, we assume normalized CRE banking economics (1.1% pre-tax ROA and 35% tax rate) on the \$118bn of loans at risk, though we note that transitional loans likely have superior economics due to their higher credit risk. We also note that banks wouldn't necessarily lose all of the profit on loans that shift to non-banks as banks are frequently the buyers of A-pieces of loans that STWD and other syndicate.

In addition to the transitional lending opportunity, non-banks could continue to gain share of the total market through construction (HVCRE) loans and from the upcoming CMBS refi wave, a portion of which would likely be ineligible for bank or CMBS loans due to cash flow shortfalls. However, we estimate that the amount of constructions loans shifting to non-banks will be relatively limited in the near-term as non-banks such as STWD have indicated that they are not looking to increase their exposure.

Exhibit 103: We estimate transitional CRE lenders are 7-8x more profitable than traditional banks

Illustrative bank vs. transitional CRE lender economics

All banks CRE - normalized through the cycle			Transitional CRE lenders - unlevered economics		
		Legend			Legend
Average 5 yr UST	1.9%	A	Average loan yield	10.0%	A
Average loan spread	3.0%	B	Cost of funds	0.0%	B
Average loan yield	4.9%	C = A+B	Provision for losses	0.0%	C
Cost of funds	1.8%	D	NIM	10.0%	D = A-B-C
Provision for losses	0.3%	E	Management fee	1.5%	E
NIM	2.9%	F = C-D-E	Incentive fee	0.5%	F
Efficiency ratio	60.0%	G	Expense reimbursement	0.2%	G
Pre-tax ROA	1.1%	H = F * (1-G)	Pre-tax ROA	7.8%	H = D-E-F-G
CRE loans (\$bn, as of 3Q14)	1,322	I	CRE loans (\$bn, as of 3Q14)	20	I
Net Revenue (\$bn)	38	J = F * I	Net Revenue (\$bn)	2.0	J = D * I
Pre-tax profit (\$bn)	15	K = H * I	Pre-tax profit (\$bn)	1.6	K = H * I

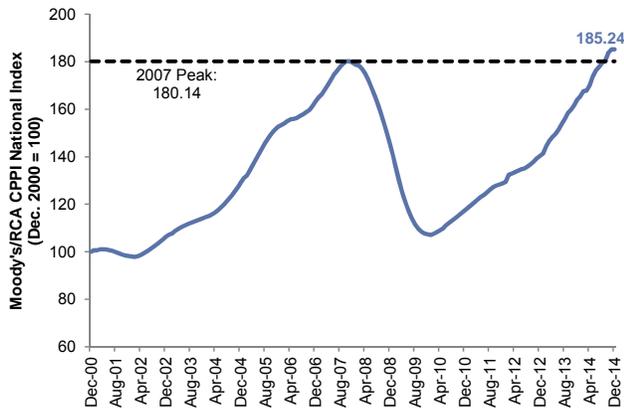
Source: Goldman Sachs Global Investment Research, Federal Reserve Bank, Factset

Non-bank growth is sustainable due to continued demand for CRE loans

Additional \$200bn opportunity for non-banks in the upcoming CMBS refi wave: The demand for commercial real estate loans should grow in 2016-2017 as loans taken out during the peak of the real estate bubble start coming due. More than \$300bn of CMBS will mature over the next few years, which is more than 2.5 times the amount matured in the last two years. While most of these properties will be stabilized with strong cash flow and thus likely to be refinanced by banks, conduits or insurance companies, we expect a subset to fall into STWD and CLNY's sweet spot.

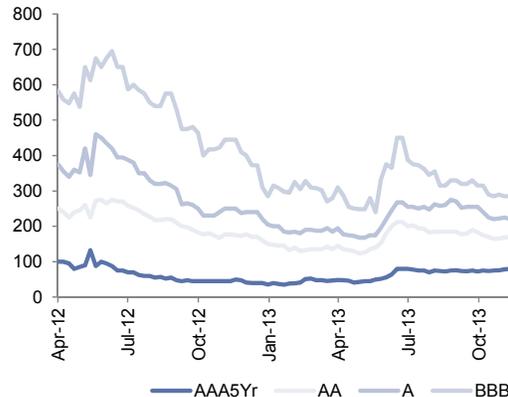
While we believe that roughly 80% of these maturities will be eligible to refinance at current cash flow and debt-to-income levels, the ability to do so with banks may be challenged by 1) rising rates, 2) lower-than-peak property values in certain geographies (many of the deals maturing in 2016-17 were done during more frothy periods (2006-07), increasing the likelihood of a more complex financing structure), 3) the implementation of new risk retention rules for banks, and 4) the large increase in demand and relatively stable amount of supply. The remaining 20% of maturities will most likely require additional capital when the loans are refinanced or sold, based on current debt-to-income levels, which would be a \$200bn opportunity for mezzanine financing or equity investments that non-banks can provide. However, the recent growth in commercial property values and tighter CMBS spreads has limited this opportunity somewhat.

Exhibit 104: While commercial property values in certain geographies are still below peak level, the national average is now above peak, making traditional refi more feasible



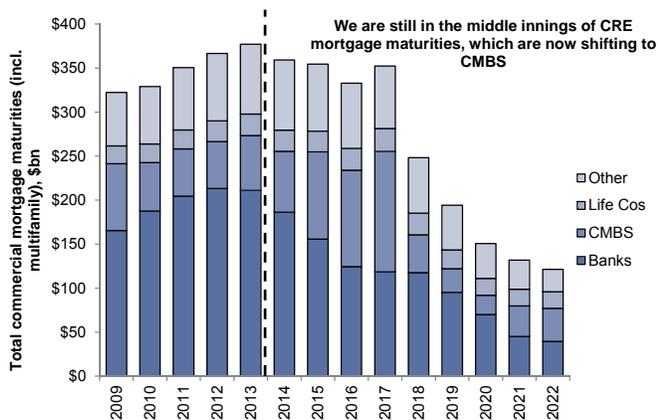
Source: Moody's, Real Capital Analytics, Goldman Sachs Global Investment Research

Exhibit 105: New issue CMBS spreads have tightened significantly over the past 2-3 years
CMBS 2.0 and 3.0 spreads



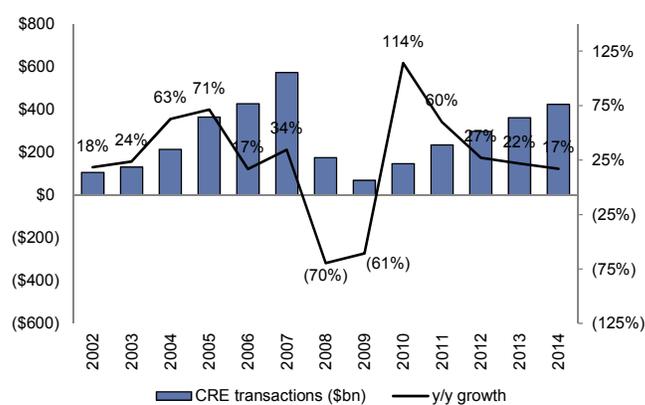
Source: Bloomberg, Goldman Sachs Global Investment Research

Exhibit 106: We expect \$1.6 trillion of commercial real estate debt to mature over the next 5 years
CRE loan maturities by current lender type (\$bn)



Source: Trepp, Goldman Sachs Global Investment Research

Exhibit 107: CRE transactions (\$bn) have rebounded sharply and are approaching 2006-07 levels
Yearly CRE property transactions and growth



Source: Real Capital Analytics, Goldman Sachs Global Investment Research

Appendix: Summary of private players

Exhibit 108: Summary of private operators in the market

Summary of private players									
Company name	Headquarters	Year founded	Segment	Business model	Latest financing	Series round	Capital raised (\$mns)	Total capital raised (\$mn)	
Personal lenders/platforms:									
Prosper	San Francisco, CA	2006	P2P lending platform	Prosper is a peer-to-peer lending marketplace, allowing people to invest in each other in a financially and socially beneficial way.	4-May-14	PE	70.0	189.9	
Payoff	Costa Mesa, CA	2009	P2P lending platform	Payoff makes loans to help people pay off credit card debt.	22-Oct-14	Series B	12.0	24.8	
Upstart	Palo Alto, CA	2012	P2P lending platform	Upstart is an online lending platform that uses data to bring together high potential borrowers and investors.	22-Apr-13	Series A	5.9	7.7	
ArgonCredit	Chicago, IL	2014	Online personal lender	Argon Credit is a Chicago based technology company that offers consumer loans for prime to near prime borrowers.	1-Jan-14	Series A	3.0	5.1	
Peerform	New York, NY	2010	P2P lending platform	Peerform is a peer-to-peer lending platform that connects lenders and borrowers for fixed-rate personal loans.	8-Apr-14	Seed	1.0	2.9	
LendUp	San Francisco, CA	2011	Small dollar lender	LendUp's first product is a socially responsible alternative to payday loans.	28-Apr-14	Debt	50.0	64.0	
Small business lenders/platforms:									
Kabbage	Atlanta, GA	2009	Small business financing	Kabbage, Inc. is a technology and data company that has pioneered a new automated way to lend money to small businesses and consumers.	5-May-14	Series D	50.0	465.4	
Biz2Credit	New York, NY	2007	Small business financing	Biz2Credit is a hub connecting small business owners with lenders and service providers, and seek solutions based on their online profiles.	29-Dec-14	NA	250.0	NA	
Merchant Cash and Capital	New York, NY	2005	Small business financing	Leader in providing alternatives to traditional funding sources and an innovator in providing merchant cash advances.	17-Mar-14	Debt	75.0	75.0	
CAN Capital	New York, NY	1998	Small business financing	CAN Capital provides capital to small and medium-sized businesses, using its own real-time platform and risk-scoring models.	8-Jan-14	Series C	33.0	63.0	
World Business Lenders	New York, NY	2011	Small business financing	World Business Lenders provides capital to small businesses through credit cards, checks and cash payments.	8-Oct-13	Debt	20.0	25.0	
BlueVine	Palo Alto, CA	2013	Small business financing	BlueVine is a leading online provider of working capital financing to small businesses	21-Jan-15	Series B	18.5	24.0	
Foundation	New York, NY	2011	Small business financing	Direct lending platform providing businesses nationwide with affordable access to capital through a technology driven process.	29-Nov-13	PE	2.7	NA	
Student lenders/platforms:									
SoFi	San Francisco, CA	2011	Student loan refinancing	SoFi is a leading marketplace lender and the #1 provider of student loan refinancing, with over \$1.75 Billion lent to date.	30-Jan-15	Series D	200.0	766.2	
CommonBond	New York, NY	2011	Student loan refinancing	CommonBond is an online lending platform that connects borrowers and investors to make education finance better	5-Feb-15	PE	150.0	353.5	
Earnest	San Francisco, CA	2013	Student loan refinancing	Earnest is a merit-based lender with a unique approach to personal lending and credit.	27-Jan-15	Series A	17.0	32.0	
Mortgage lenders/platforms:									
Quicken Loans	Detroit, MI	1985	Online mortgage lending	Quicken Loans Inc., headquartered in Detroit, Michigan, is the largest online mortgage lender in the US.	NA	NA	NA	NA	
Freedom Mortgage	Mount Laurel, NJ	1990	Mortgage lending	Freedom Mortgage is the 10th largest mortgage originator in the US that specializes in originating FHA and VA mortgage loans.	NA	NA	NA	NA	

Source: Goldman Sachs Global Investment Research, Company reports

Disclosure Appendix

Reg AC

We, Ryan M. Nash, CFA, Eric Beardsley, CFA, James Schneider, Ph.D., Richard Ramsden, Heath P. Terry, CFA and Greg Dunham, CFA, hereby certify that all of the views expressed in this report accurately reflect our personal views about the subject company or companies and its or their securities. We also certify that no part of our compensation was, is or will be, directly or indirectly, related to the specific recommendations or views expressed in this report.

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