CANADA, AUSTRALIA & THE U.S. – ONE OF THESE THINGS IS NOT LIKE THE OTHERS

January 10th, 2018

LEGAL

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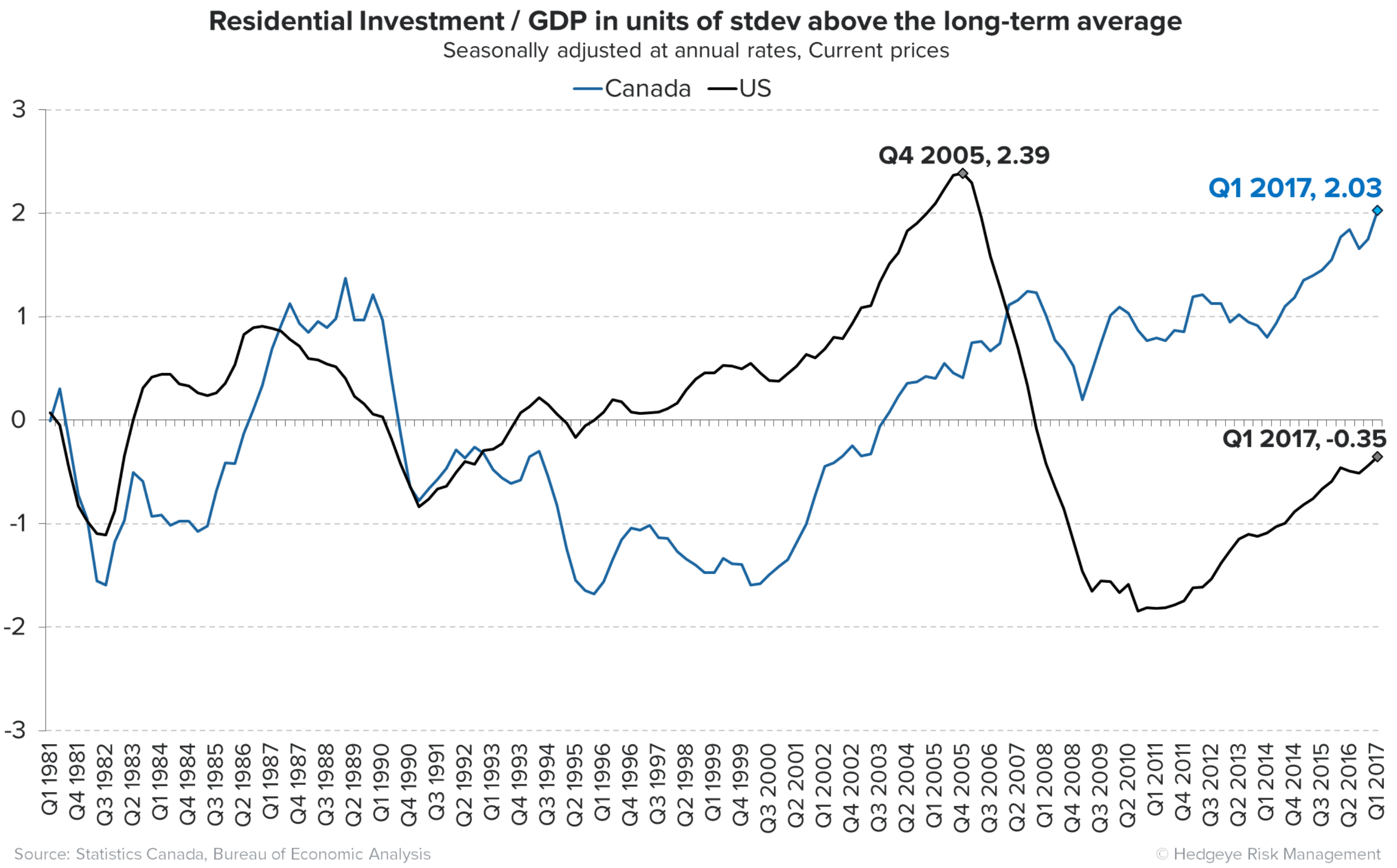
CANADA

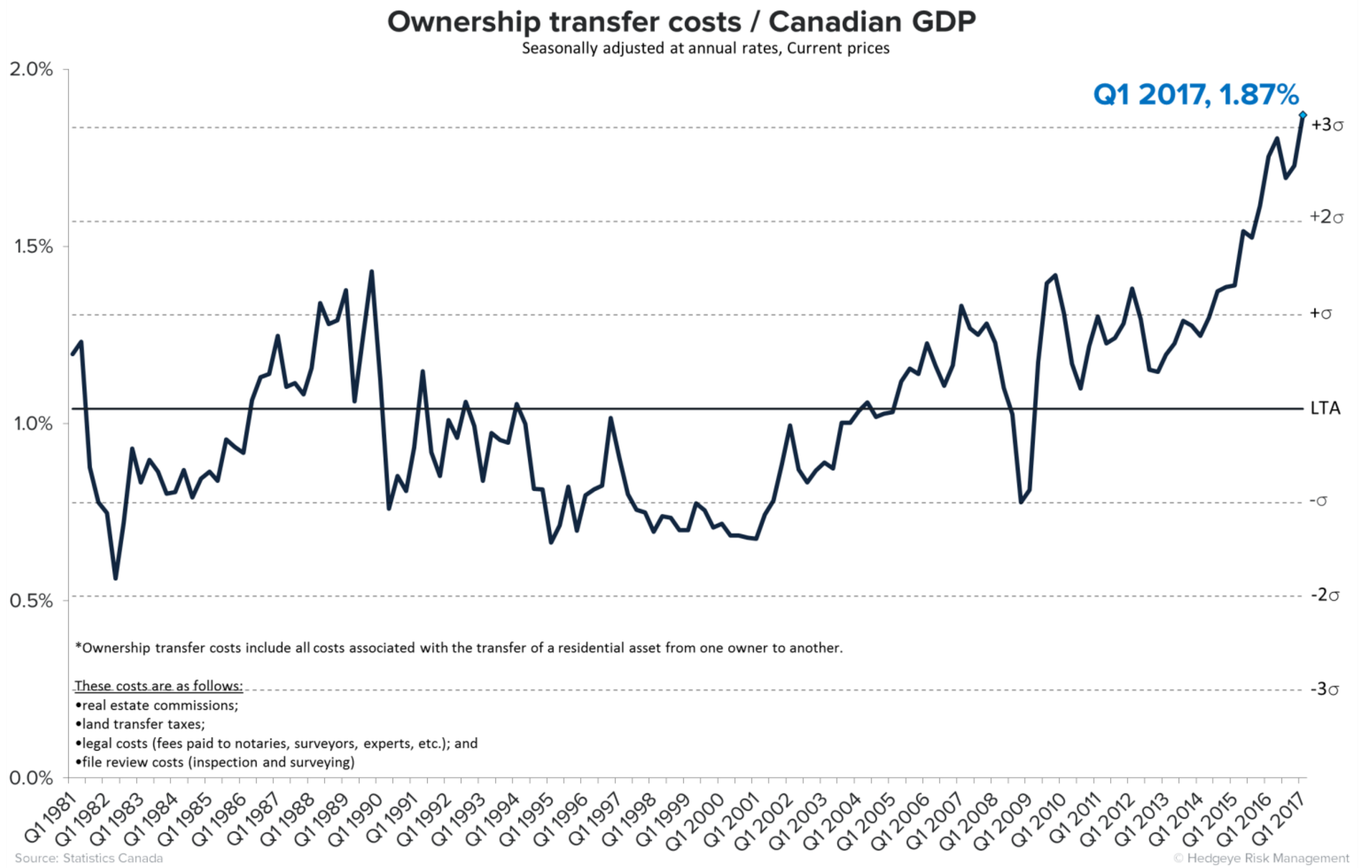
A LOOK AT SOME OF THE RISKS UNDERLYING THE CANADIAN HOUSING MARKET

PRIVATE FIXED INVESTMENT IN RESIDENTIAL STRUCTURES



Following the G.F.C , the contribution of Canadian residential real estate investment to GDP **has been steadily edging up to the U.S. peak in 2005.**

BROKER COMMISSIONS NEARLY 2% OF GDP

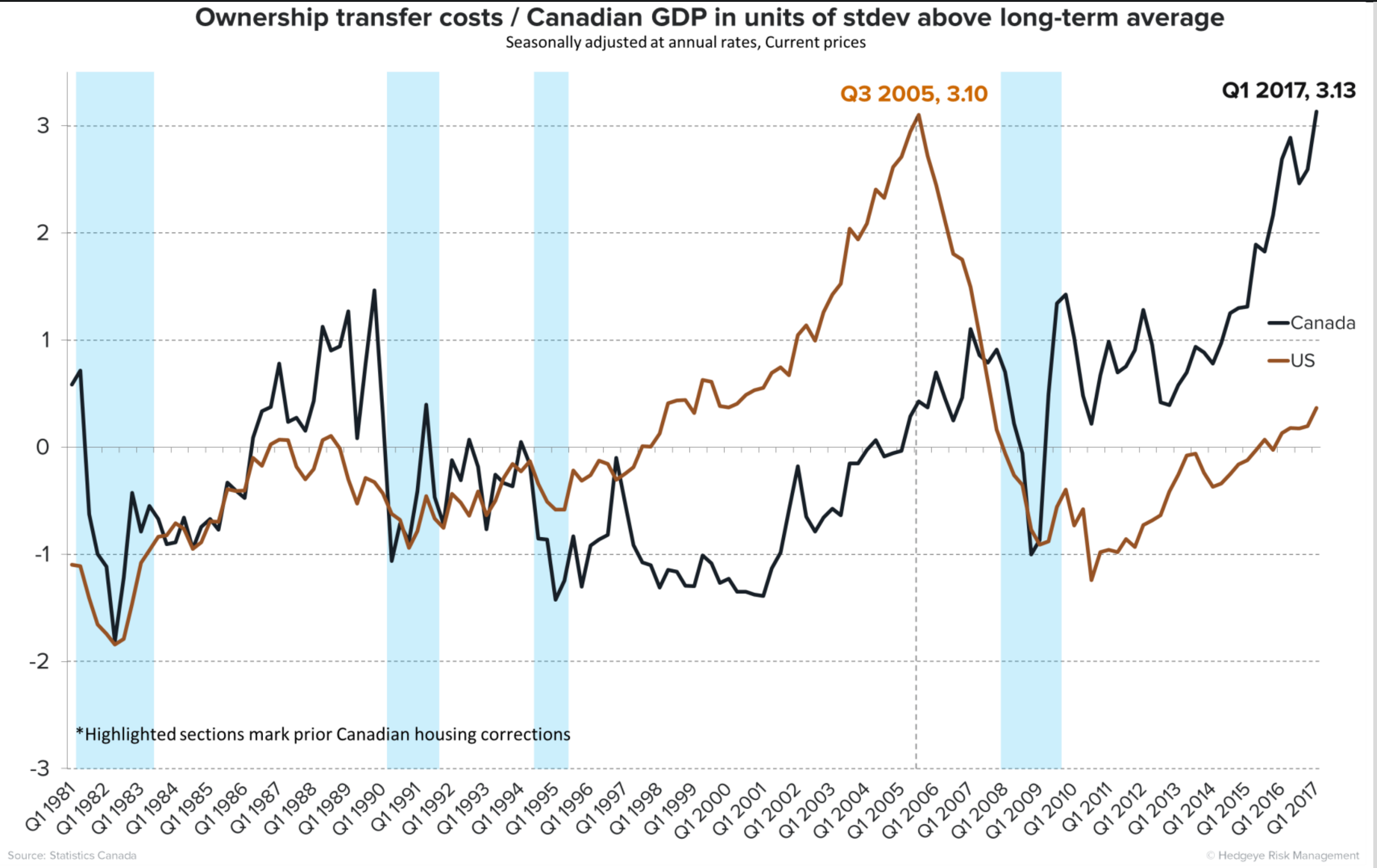


Another <u>useful measure</u> of the housing craze north of the border is <u>broker commissions and other ownership transfer fees as a share of GDP</u>.

This figure currently stands at 1.87% or **more than 3 standard deviations above its long-term average.**

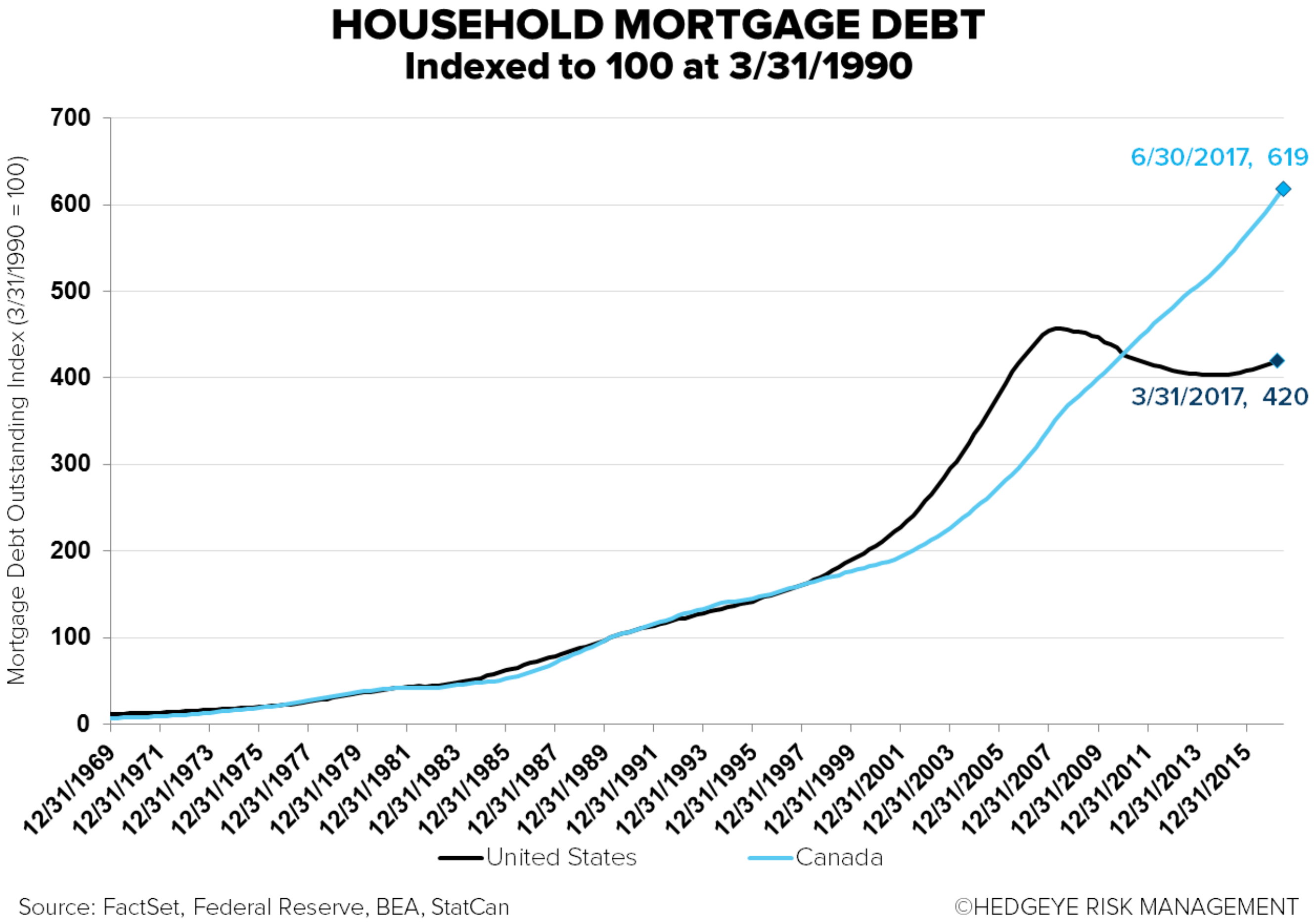
Data Source: Statistics Canada

BROKER COMMISSIONS NEARLY 2% OF GDP



On a relative basis, broker commissions and other ownership transfer fees have now **eclipsed levels reached during the U.S. housing peak**.

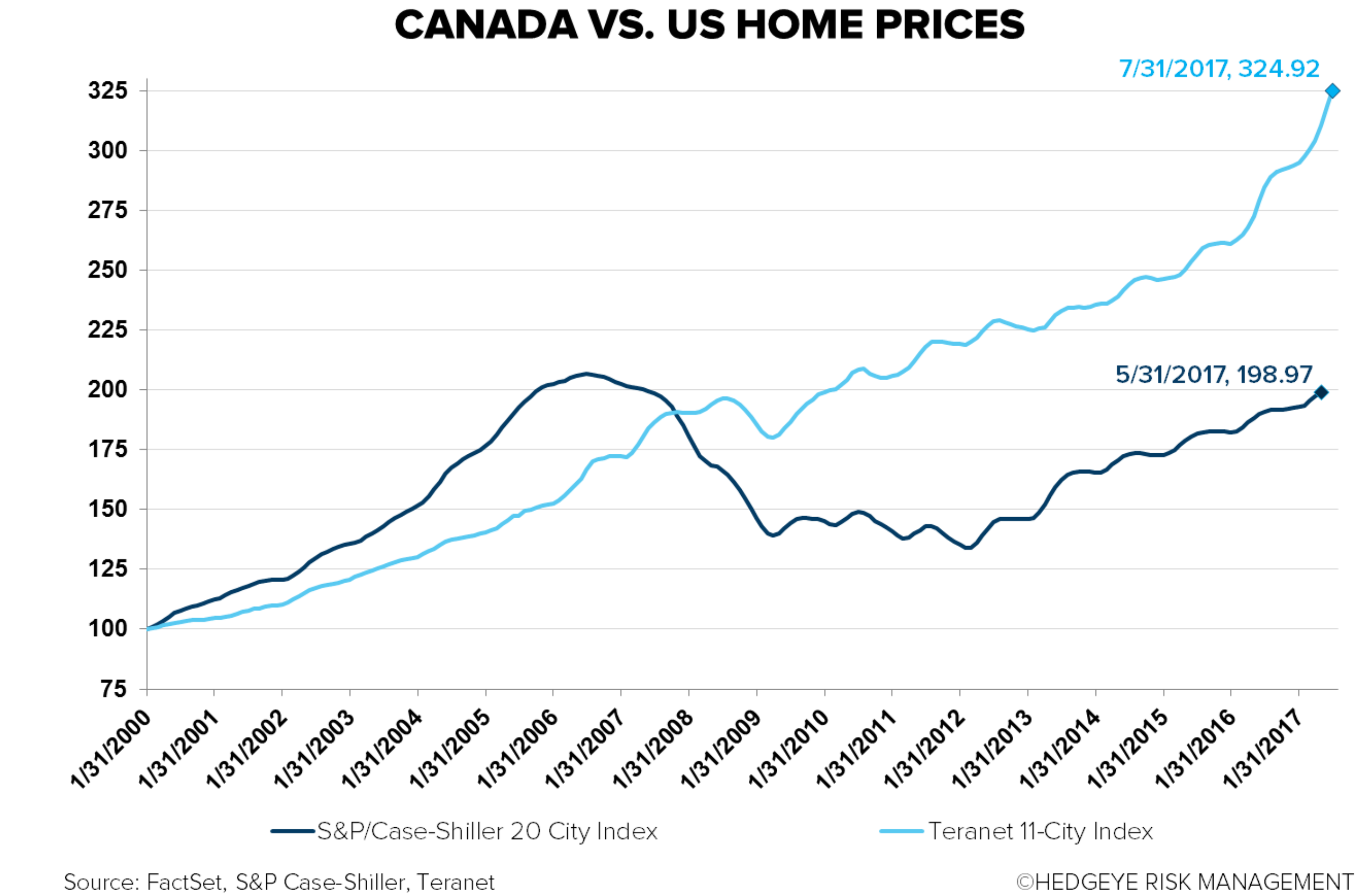
ROCKETING MORTGAGE DEBT



Speaking to that trajectory, we can see that **Canadian mortgage debt has thoroughly outpaced its U.S. equivalent in the years following the financial crisis.**

Data Source: FactSet, Federal Reserve, BEA, Statistics Canada

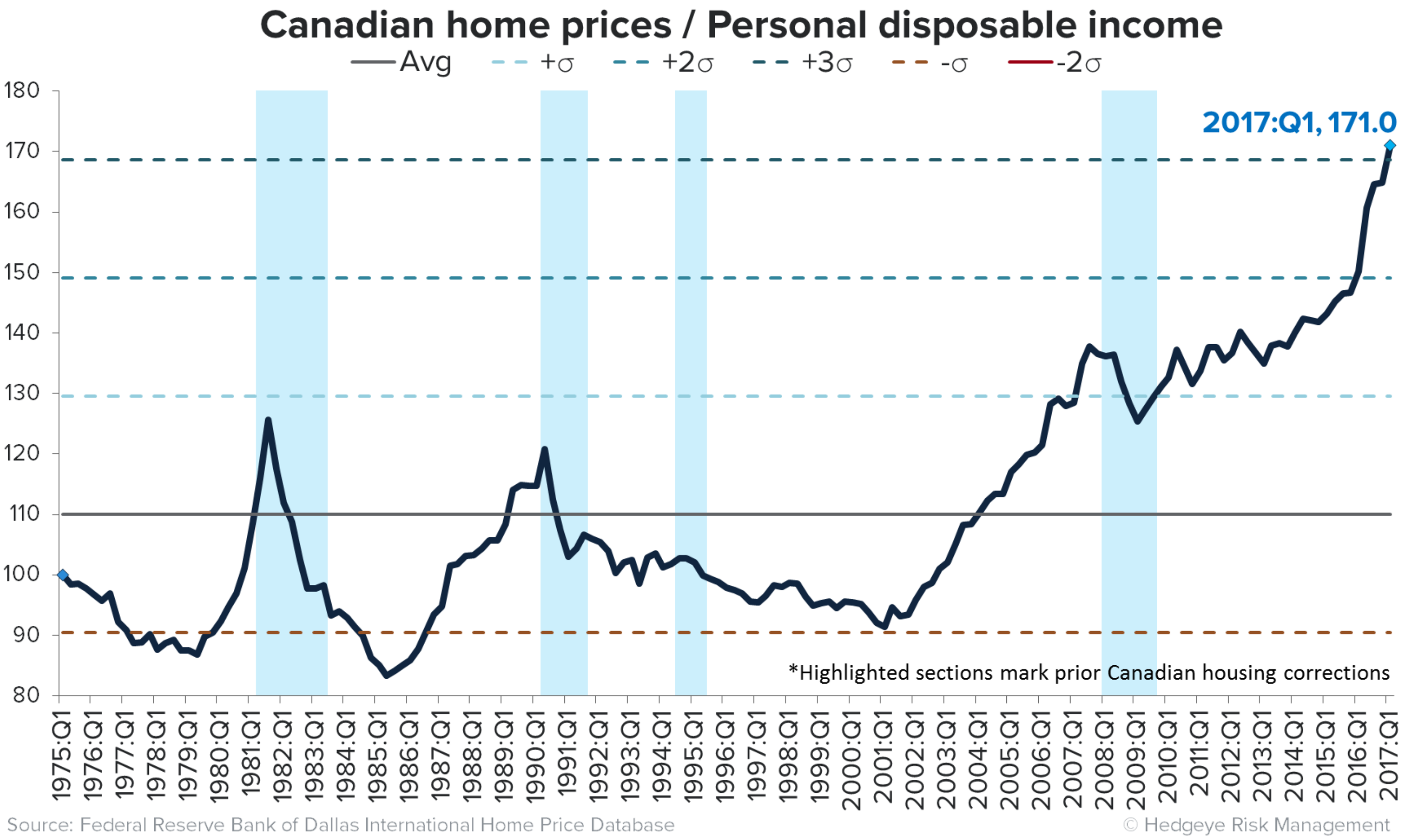
CANADA OUTPACING THE U.S.



In the years following the financial crisis, Canadian real estate has thoroughly outpaced its neighbor to the south.

In particular, the run-up in Canadian housing has surpassed the level of appreciation seen in the U.S. from 2000-2007.

HOME PRICES CLEARLY HAVE OUTPACED INCOMES



Based on the extended break from trend, it may appear that a sense of stationarity has lost itself on this particular metric; however, the move up and beyond one positive standard deviation came coincident with global real estate peaks, and then after a modest correction, continued to push on as Canada rode a period of global commodity reflation followed by the speculative charm accompanying heightened levels of foreign buyer activity in the middle part of this decade.

Hence, **mean reversion is still very much on the table**.

MAJOR POLICY CHANGES ENACTED: 2016 – PRESENT

February 2016

- Minimum down payment, for the portion of insured mortgages >C$500K, raised to 10%

August 2016

- B.C. government establishes 15% tax on foreign buyers in Metro Vancouver Area

September 2016

- OFSI targets lenders and mortgage insurers by imposing higher capital requirements for insured mortgages that do not meet the regulator's underwriting standards , and requiring mortgage insurers to hold supplementary capital based on mortgage characteristics

October 2016

- All high-ratio insured homebuyers must qualify for mortgage insurance at an interest rate the greater of their contract mortgage rate or the Bank of Canada's five-year fixed posted rate
- Principal residence exemption from capital gains taxation limited to Canadian residents only and tax reporting requirements introduced for all dispositions of real estate

November 2016

- New low-ratio mortgages insured using portfolio insurance must satisfy the same eligibility criteria as high-ratio insured mortgages. Most notably, low-ratio mortgages insured at the portfolio level can no longer include refinancings and have been limited to a maximum amortization length of 25 years and property values below C$ 1 million.

Data Source: OFSI, CMHC

MAJOR POLICY CHANGES ENACTED: 2016 – PRESENT

April 2017

- Ontario government introduces Fair Housing Plan, **formally establishing a 15% non-resident speculation tax applicable throughout the Greater Golden Horseshoe area** and empowering interested municipalities to introduce home vacancy taxes to encourage the sale or rental of unoccupied units left vacant by speculative owners

October 2017

- **OFSI finalizes revisions to B-20 Residential Mortgage Underwriting Practices and Procedures, which include:**
  - i. The implementation of a minimum qualification rate for uninsured mortgages, now calculated as the greater of the Bank of Canada 5-year posted rate (currently ~4.99%) and the contract rate (currently as low as 2.99% for some uninsured borrowers) + 200 bps.
  - ii. Restrictions on co-lending and bundled mortgages that give the appearance of an attempt to circumvent LTV limits.
  - iii. LTV measurements that adjust for local market conditions used to assess the risk of qualifying borrowers (i.e. encouraging the use of internally assigned haircuts to appraisal values based on regional market characteristics).

THE HOUSING LANDSCAPE IN THE POST B-20 WORLD

THE WINNERS: CREDIT UNIONS, PRIVATE LENDERS, MORTGAGE INVESTMENT CORPORATIONS (MICS), AND SMALLER NON-PRIME LENDERS (MORTGAGE FINANCE CO'S) THAT DO NOT RELY ON DEPOSIT FUNDING

- Each of these will still allow borrowers to obtain a mortgage based at the contract rate rather than higher stress-test rate.

- According to the Bank of Canada, provincially regulated credit unions account for 17% of outstanding uninsured mortgages.

- The co-lending or bundled or comprehensive LTV cap does not apply to this group; hence, mortgage brokers will still be able partition a 90% LTV loan into a lower-cost first mortgage at an 80% LTV and a higher-cost second mortgage accounting for the remainder.

- These groups will also find greater demand for their mortgage products from borrowers turned down by federally regulated lenders, which will tend to come from lower risk borrowers than their businesses are used to dealing with. As a result, they will likely avail themselves to higher rates to match the higher demand.

- These groups also tend to be far more flexible, i.e. allowing for higher debt service ratios, weaker income verification, longer amortizations, and a possible "rate-cut, fee add-on" combination to allow borrowers to qualify for larger mortgages.

- With respect to credit unions and monoline lenders, however, the CMHC is currently assessing whether to impose additional measures on low-ratio mortgages originated by lenders, outside of OSFI supervision, who participate in government securitization programs. Note, monoline lenders derive 90% of their funding from public securitization programs.

THE HOUSING LANDSCAPE IN THE POST B-20 WORLD

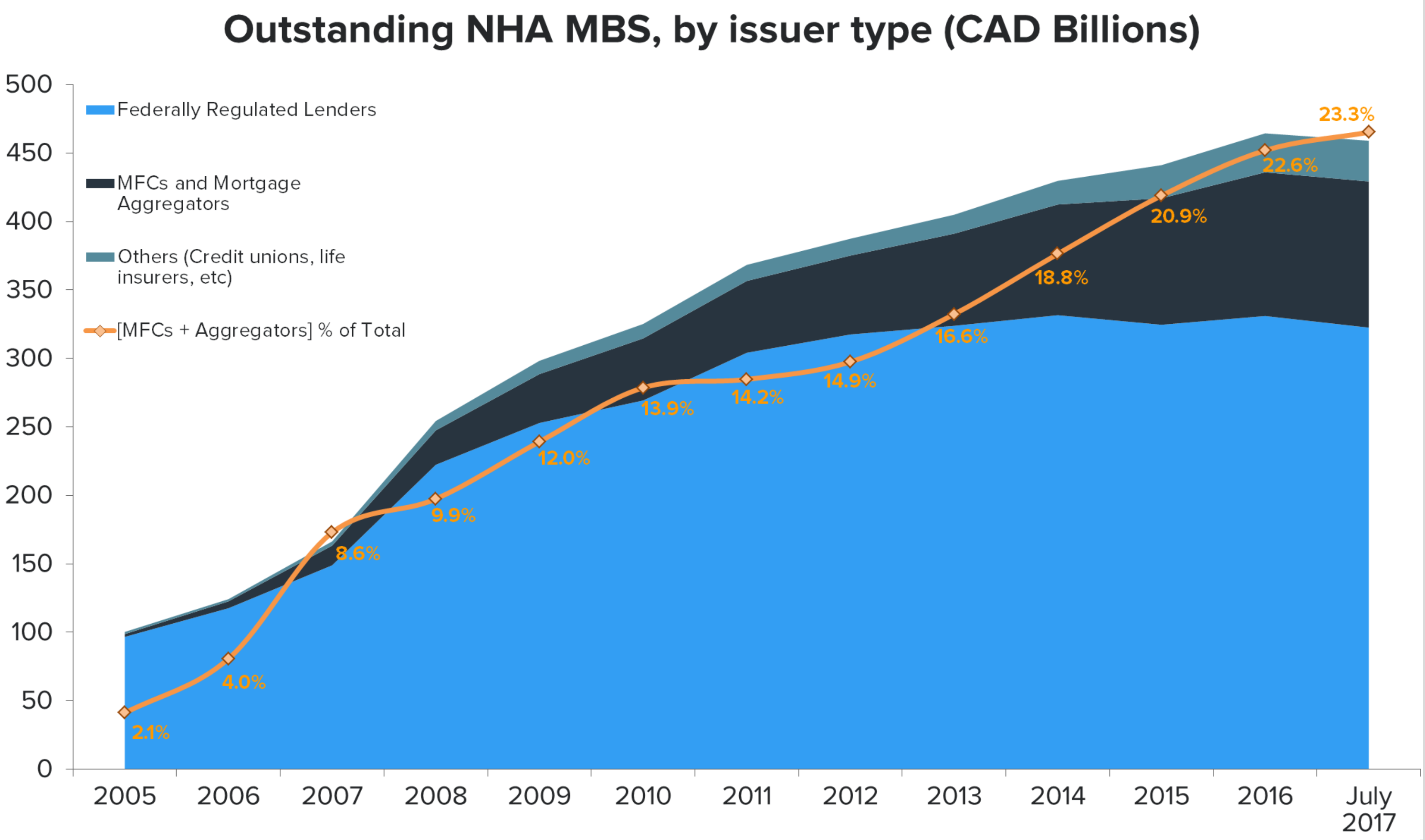
HEDGEYE ANALYSIS

- The revised underwriting guidelines effectively amount to a game of chicken between OFSI and speculative/overly-eager home-buyers.

- The rules are intended to better insulate the federal lending system, with a purposeful disregard for borrowers willing to migrate down the credit ladder, in the form of higher rates and longer amortizations, to non-OFSI regulated lenders in order to purchase a home and obtain some late-inning "skin" in the game.

- While a migration down the credit ladder would only serve to augment the instability of the system, it is our view, given the severity of this policy change, that the negative psychological effects rendered on would-be home-buyers and existing homeowners will be enough to spur heightened reservations even among the most adamant Canadian housing market enthusiasts.

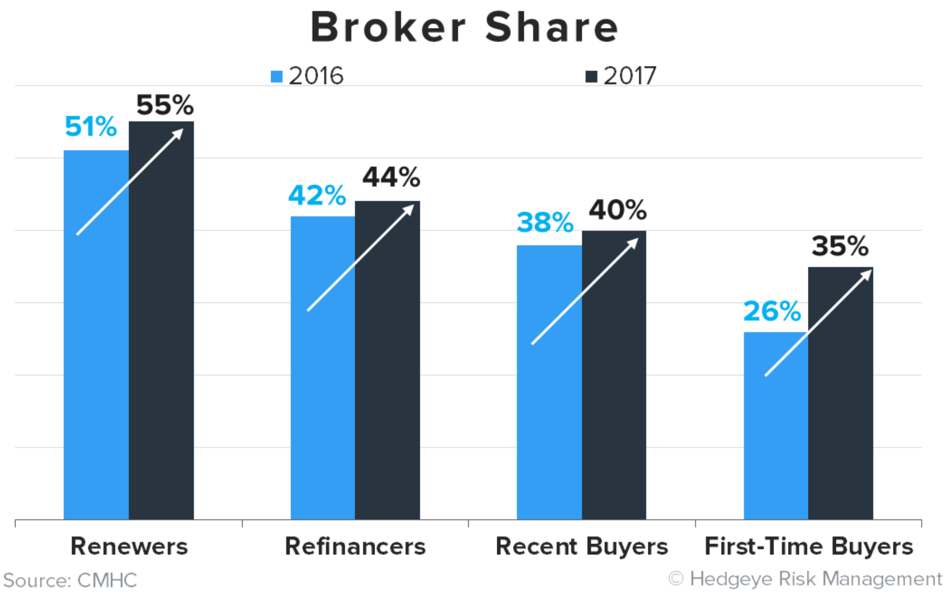
MFC GROWING SHARE OF OUTSTANDING NHA MBS

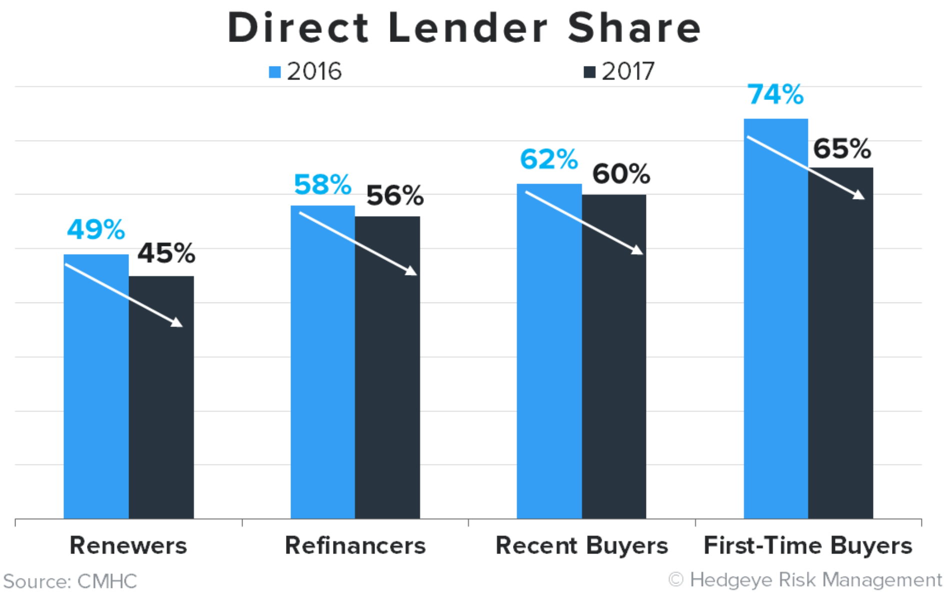


Monoline lenders and mortgage aggregators have continued to grow their representation of outstanding public securitization, most notably in the last three to four years and coincident with the best years in Canadian real estate.

Data Source: CMHC

BROKER CHANNEL GROWING MARKET SHARE



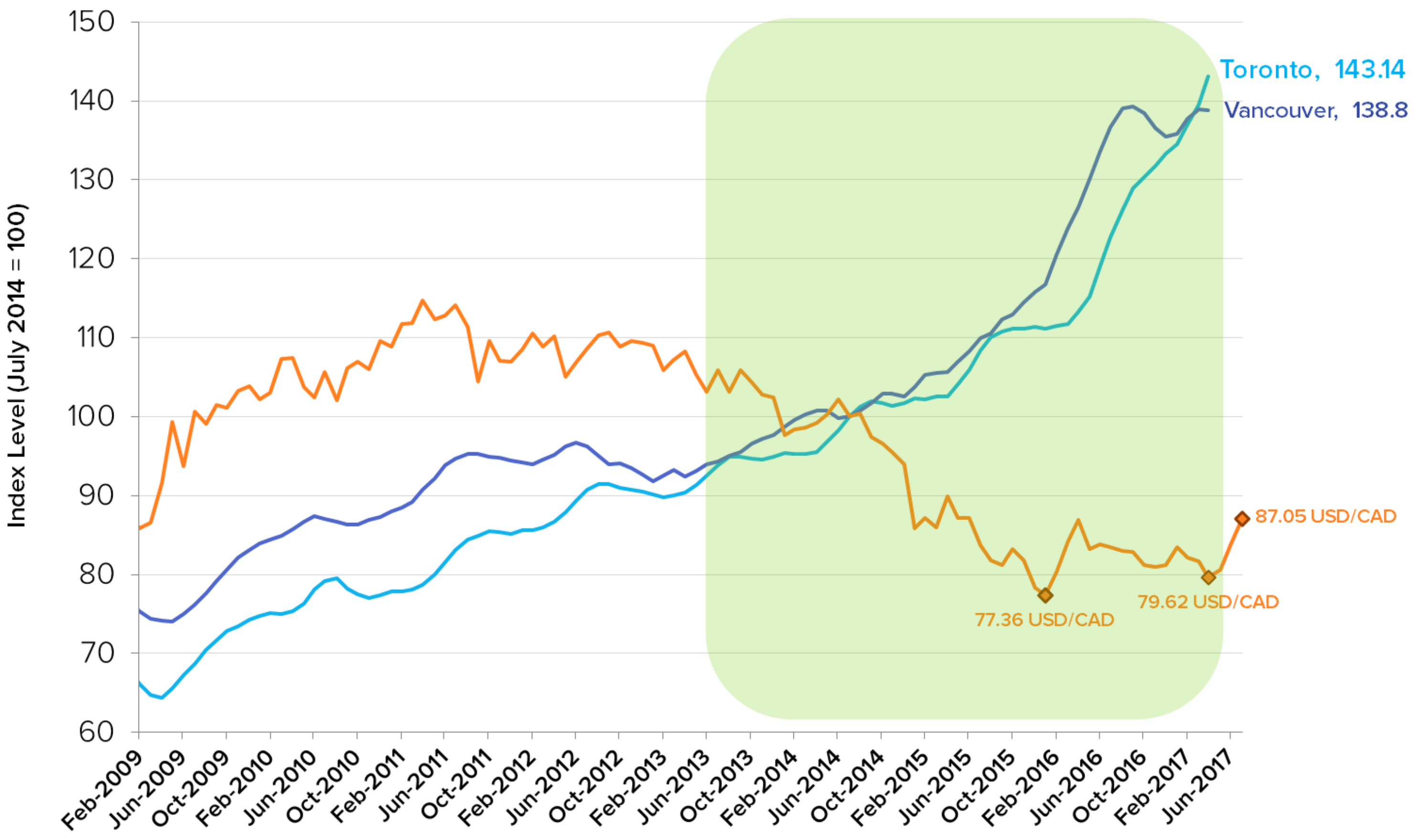


*Based on a CMHC online survey, taken March 2017, of 3,002 recent mortgage consumers, all prime household decision-makers who had undertaken a mortgage transaction in the past 12 months.

MFC'S HAVE CONTINUED TO BUILD SHARE

MFC's operate strictly through the broker channel; hence, the growing broker share of mortgage originations is evidence that MFCs have continued to build share of the total Canadian mortgage book.

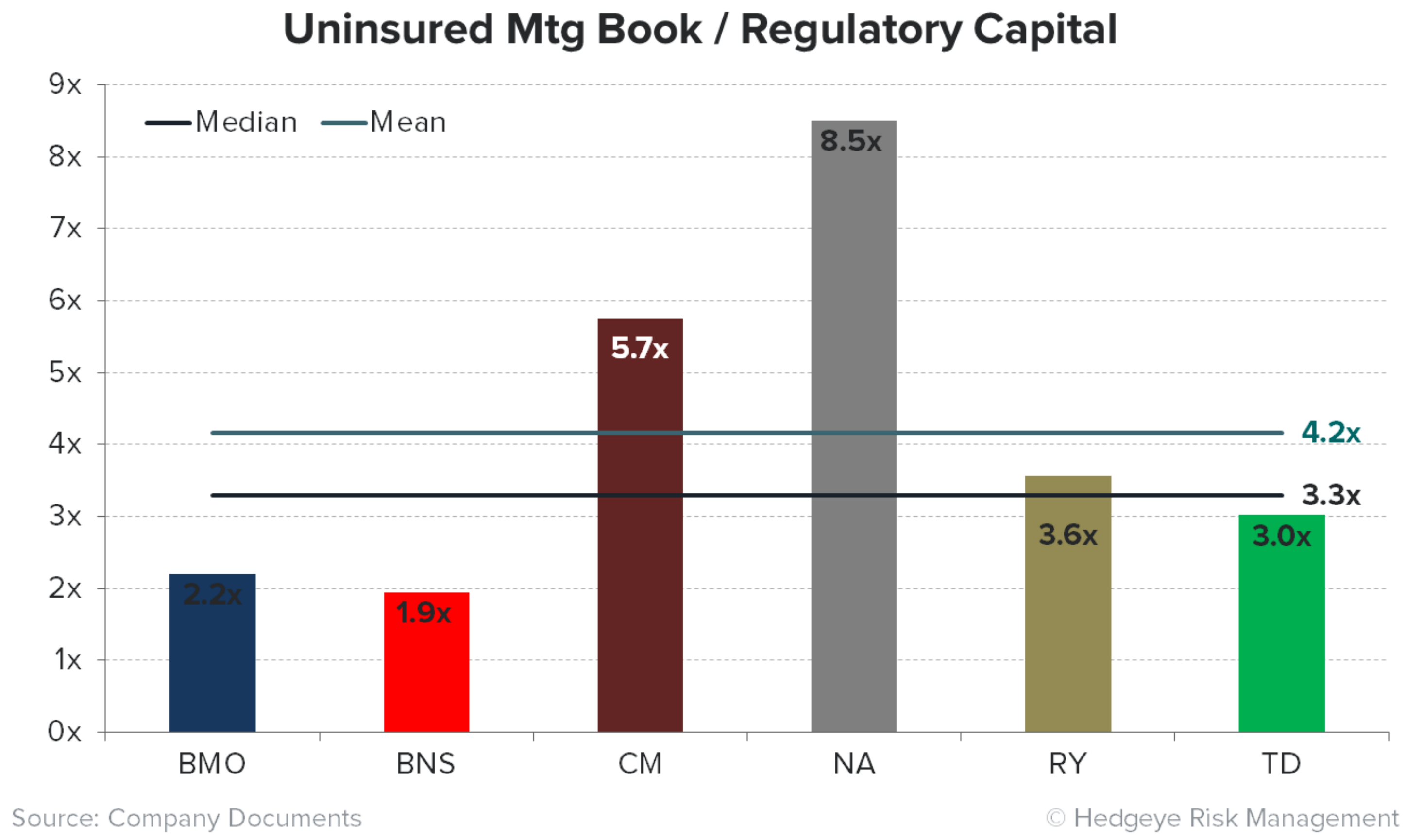
THE LURE OF A WEAK CANADIAN DOLLAR



We can see that the **speculative rise** in major Canadian housing markets is **coincident with the 29% decline** in the CAD from July 2014 to January 2016, evidencing the macro backdrop that we have highlighted in the prior two slides.

Data Source: Factset

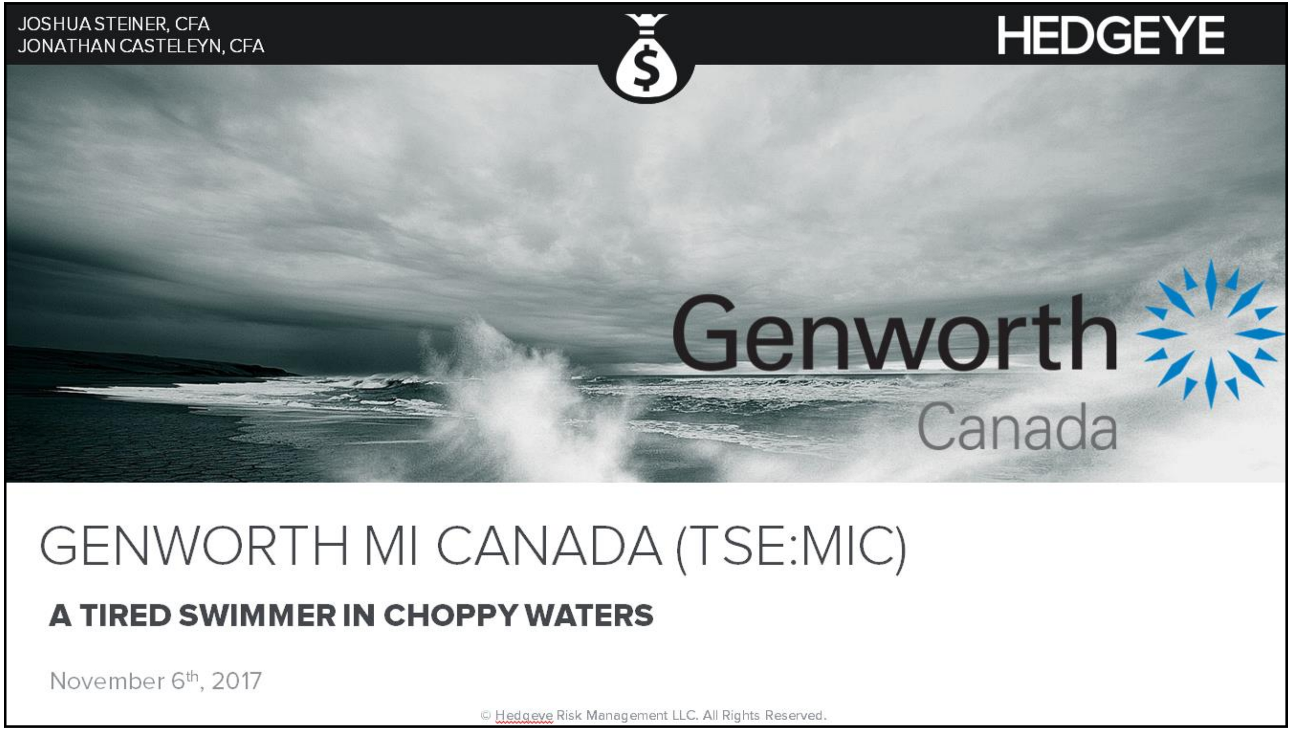
UNINSURED BOOK TO REGULATORY CAPITAL



National Bank's (TSX:NA) uninsured mortgage book amounts to 8.5x of CET1, albeit a large part of that book is based in Quebec.

Meanwhile, CIBC's uninsured book constitutes 5.7x its CET1 capital, while maintaining the largest exposure to Ontario and B.C. among the big 6 banks.

GENWORTH MI CANADA (TSE : MIC)



A LOOK AT SOME OF THE RISKS UNDERLYING ANOTHER MAJOR CANADIAN HOUSING PLAYER.

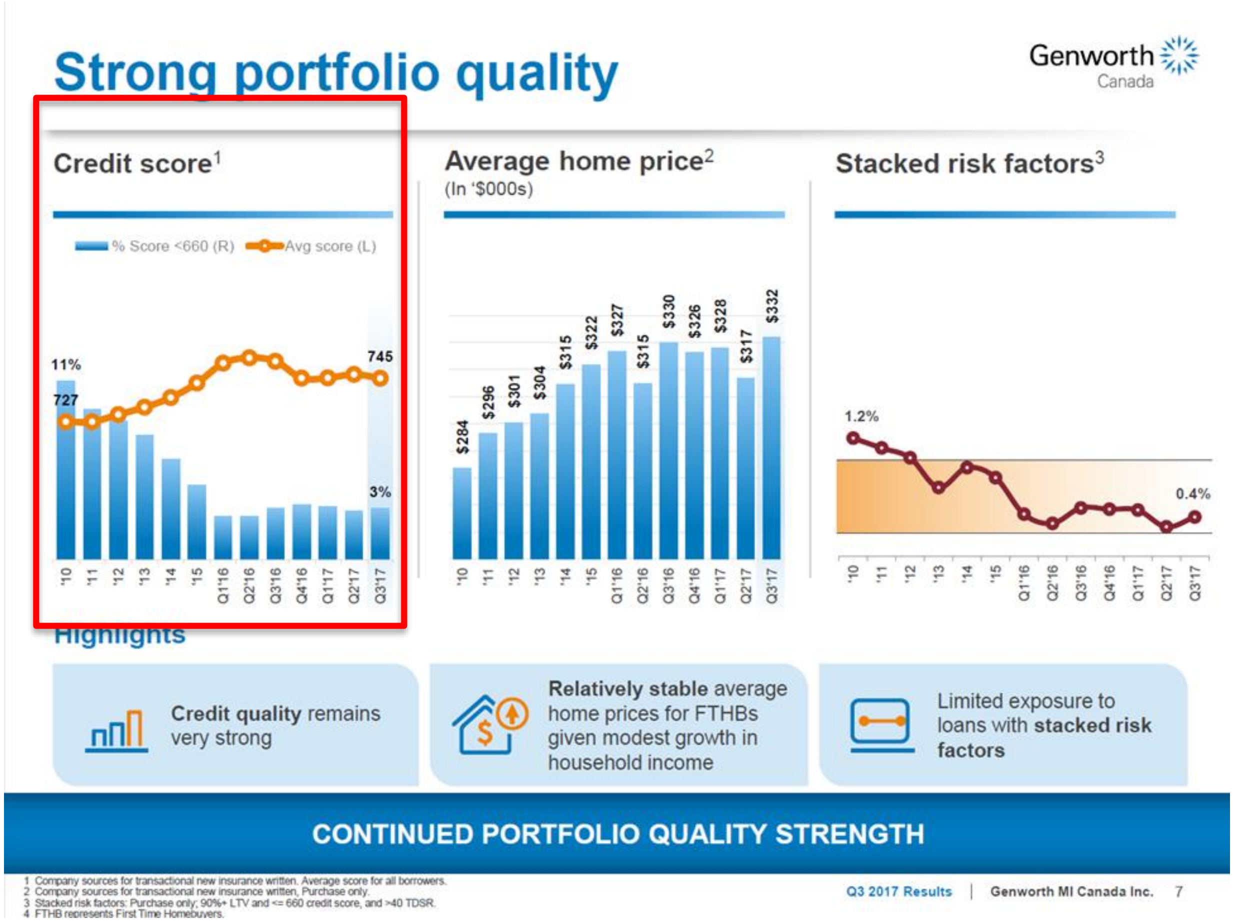
Genworth MI Canada (TSE:MIC)

1/8/2018

Valuation	
Price	$C 42.28
P/B	0.99x
P/E (NTM): 90-Day Range	7.76x - 9.29x
Dividend Yield	4.26%
Size + Liquidity	
Shares O/S	91 MM
Float (Shares)	39 MM
30-Day ADV	230 K
Turnover	0.59%
Market Cap	$C 3.85 BB
Float	$C 1.64 BB

Source: Factset

CREDIT SCORES – DON'T PLACE TOO MUCH FAITH



Genworth MI Canada has placed a lot of emphasis on credit scores. The company has generally trended upmarket in terms of scores over the last 7 years and currently has a book with an average score of 745.

It's important to note that Canadian credit scores are on a different scale than US (300-900 for Canada vs 300-850 for the US), and to make them comparable you should deduct roughly 40 points. In other words, a Canadian credit score of 745, is roughly equivalent to a 705 US credit score. 660 = ~620, and so forth.

CREDIT SCORES CAN INSPIRE FALSE CONFIDENCE

February 7, 2008, 12:00 AM EST

Credit Scores: Not-So-Magic Numbers

- The once-vaunted FICO credit scoring system is now being blamed for failing to flag risky home-loan borrowers. Will an overhaul be enough to appease angry lenders?

Dean Foust and Aaron Pressman

From humble beginnings in 1956, Fair Isaac Corp.'s credit score– developed by engineer Bill Fair and mathematician Earl Isaac to help banks and department stores calculate their customers' creditworthiness–has come to loom over consumer finance like no other statistical measure ever has. The ubiquitous three-digit FICO score now helps determine everything from the interest rates people pay on their credit cards to their attractiveness as job candidates. Some hospitals have even begun checking FICO scores before admitting patients. "FICO is the wizard behind the curtain of the economy," says Matt Fellowes, a scholar at the Brookings Institution, a Washington think tank.

But with mortgage defaults surging and credit-card issuers bracing for more problems, the wizard seems to have lost some of its magic. A slew of unforeseen problems, some of Fair Isaac's making and others not, have combined to weaken the credit-scoring system on which most U.S. lenders and investors rely. The FICO score, last overhauled in 1989, is based on a complex formula using many variables--and yet it can be manipulated fairly easily by ordinary people. In the past few years a group of "credit doctors" and mortgage brokers began devising tricks, some illegal, to help borrowers juice their FICO scores to qualify for credit cards and mortgages on homes they couldn't afford. At the same time new, exotic mortgages were bursting onto the scene and Fair Isaac was slow to keep up with the changes. By the end of the housing boom in 2006, FICO's accuracy in predicting the likelihood of a borrower's repaying a debt had slipped. "The more heavily lenders and bankers relied on credit scores, the more mistakes were made," says Anthony B. Sanders, a finance professor at Arizona State University and former head of asset-backed research at Deutsche Bank in New York.

Yet as FICO was becoming less effective, lenders were relying on it more and more. In earlier times, banks would go to great lengths to vet potential borrowers, checking pay stubs and tax returns, calling employers, poring over investment account statements, and on and on, a process called underwriting. The mortgage boom changed all that: Wall Street investment banks were buying up every loan in sight, and lenders had to race to keep pace with the surging demand. The FICO score became as important as a pitcher's earned run average: It was a single, universal statistic that, in theory, could communicate a loan's quality to lenders, investment banks, and investors. Emboldened by its success, Minneapolis- based Fair Isaac marketed the score for other purposes and began offering new products for different industries.

In the wake of the US Financial crisis, FICO scores were blamed for providing little predictive power of housing-related defaults. Part of this owed to the relative ease with which they could be manipulated.

While the usefulness of credit scores waned, reliance on them and their assumed predictive power was rising.

Data Source: https://www.bloomberg.com/news/articles/2008-02-06/credit-scores-not-so-magic-numbers

CREDIT SCORES – LAST REFUGE OF THE SCOUNDREL

Research Division
Federal Reserve Bank of St. Louis
Working Paper Series

FEDERAL RESERVE BANK OF ST. LOUIS

Credit Scoring and Loan Default

Geetesh Bhardwaj
and
Rajdeep Sengupta

Working Paper 2011-040A
http://research.stlouisfed.org/wp/2011/2011-040.pdf

October 2011

FEDERAL RESERVE BANK OF ST. LOUIS
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Credit Scoring and Loan Default

Geetesh Bhardwaj* Rajdeep Sengupta†‡

August 2011

Abstract

This paper introduces a measure of credit score performance that abstracts from the influence of "situational factors." Using this measure, we study the role and effectiveness of credit scoring that underlied subprime securities during the mortgage boom of 2000-2006. Parametric and nonparametric measures of credit score performance reveal different trends, especially on originations with low credit scores. The paper demonstrates an increasing trend of reliance on credit scoring not only as a measure of credit risk but also as a means to offset other riskier attributes of the origination. This reliance led to deterioration in loan performance even though average credit quality—as measured in terms of credit scores—actually improved over the years.

JEL Codes: G21, D82, D86.

Keywords: credit score, information sharing, subprime, performance

The St. Louis Fed published a paper in 2011 that looked at the relationship between credit scores and loan defaults. It found that late in the cycle, firms overly relied on credit scores and used higher credit scores to justify low quality attributes in other areas (high LTV, low doc).

CREDIT SCORES – LAST REFUGE OF THE SCOUNDREL

Table 4: Increase in Survival Probabilities for Improvements in FICO score (groups)
The numbers show a percentage point increase in the Kaplan-Meier survival probabilities (for the first two years after origination) of originations in the higher FICO score group relative to those in the lower FICO score group.

Panel A.
The FICO score groups used below are "less than 540", "540-579", "580-619" … "700-739" and "greater than or equal to 740".

	Cohort						
Improvement in FICO score	2000	2001	2002	2003	2004	2005	2006
[< 540] to [540 – 579]	8.17	7.46	5.75	4.17	4.73	4.95	5.52
[540 – 579] to [580 – 619]	4.45	4.24	3.57	3.38	3.88	3.04	1.68
[580 – 619] to [620 – 659]	3.35	2.87	2.91	3.24	4.48	4.33	2.10
[620 – 659] to [660 – 699]	1.95	2.37	2.54	2.43	2.79	4.59	4.64
[660 – 699] to [700 – 739]	1.41	1.44	1.96	1.52	1.50	2.56	4.14
[700 – 739] to [≥740]	0.91	1.10	0.81	0.84	1.30	2.57	7.84
Average All	3.37	3.25	2.92	2.60	3.11	3.68	4.32

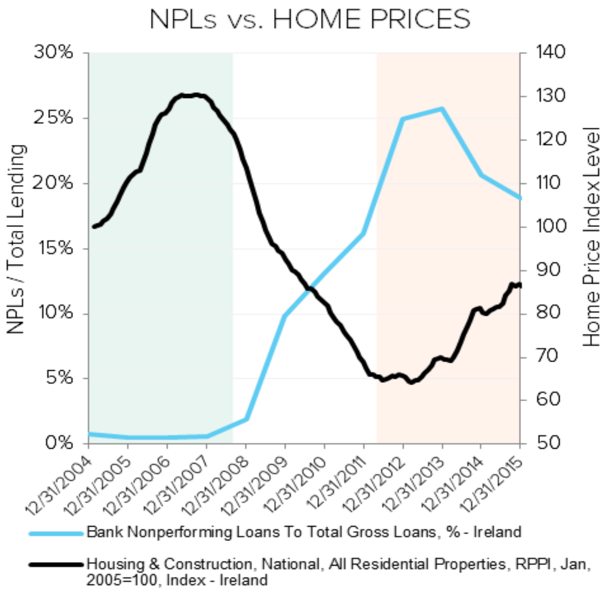
Another interesting finding was that prior to the bubble, there were large increases in survival probabilities based on low credit score cohort improvement, as one would expect. However, by the tail of the cycle, there was little such improvement.

That improvement was instead seen at the 660+ cohort and above. This would translate to the 700+ MIC cohort.

Moreover, the really large survival improvements weren't seen until the >740 cohort, which would be the >780 cohort for MIC.

A LOOK BACK AT THE TIMES

(i) THE IRISH PRECEDENT



Source: FactSet, Irish Central Statistics Office, World Bank

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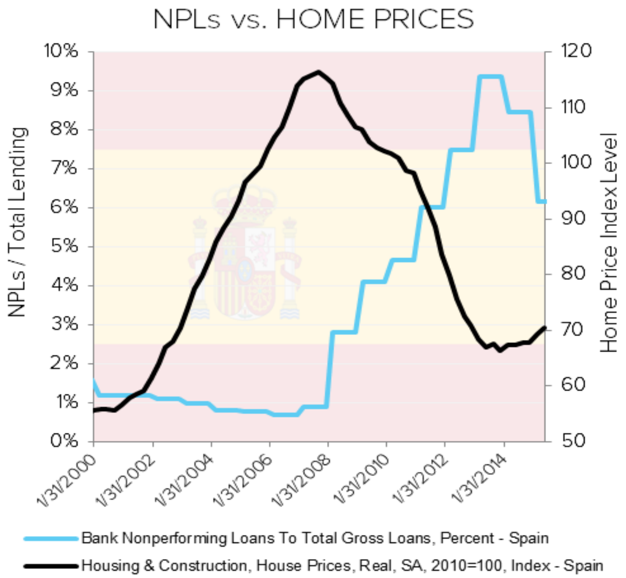
(ii) THE SPANISH PRECEDENT



Source: FactSet, Bank of Spain, OECD

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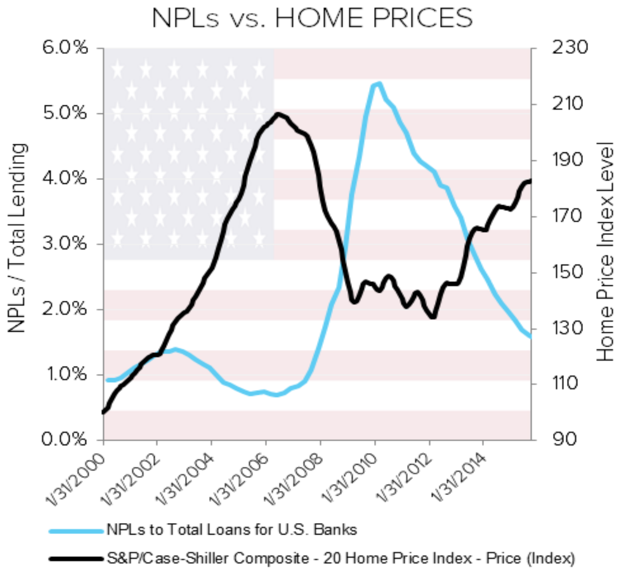
(iii) THE AMERICAN PRECEDENT



Source: FDIC, S&P Case-Shiller, FactSet

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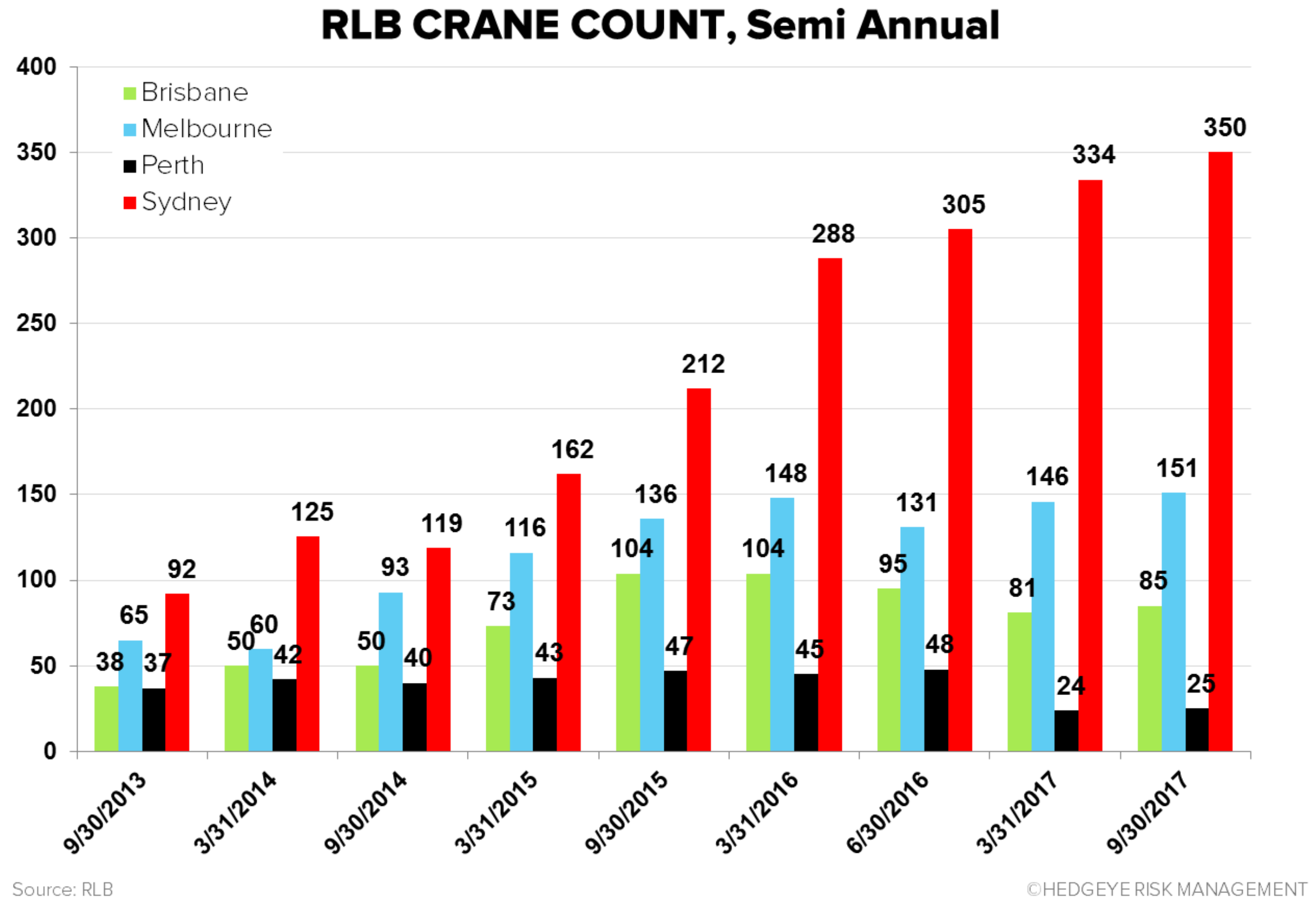
IRELAND, SPAIN, AND THE UNITED STATES OF AMERICA

- Irish home prices fell by ~50%, triggering a rise in NPLs from 1% to 25% over a 5-year period.
- Spanish home prices fell by ~40%, triggering a rise in NPLs from 1% to 7.5% over a 5-year period.
- U.S. home prices fell by ~30%, triggering a rise in NPLs from 0.5% to 5.5% over a 4-year period.

Data Source: FactSet, Irish Central Statistics Office, World Bank, Bank of Spain, OECD, St. Louis Fed, S&P Case-Shiller

AUSTRALIA

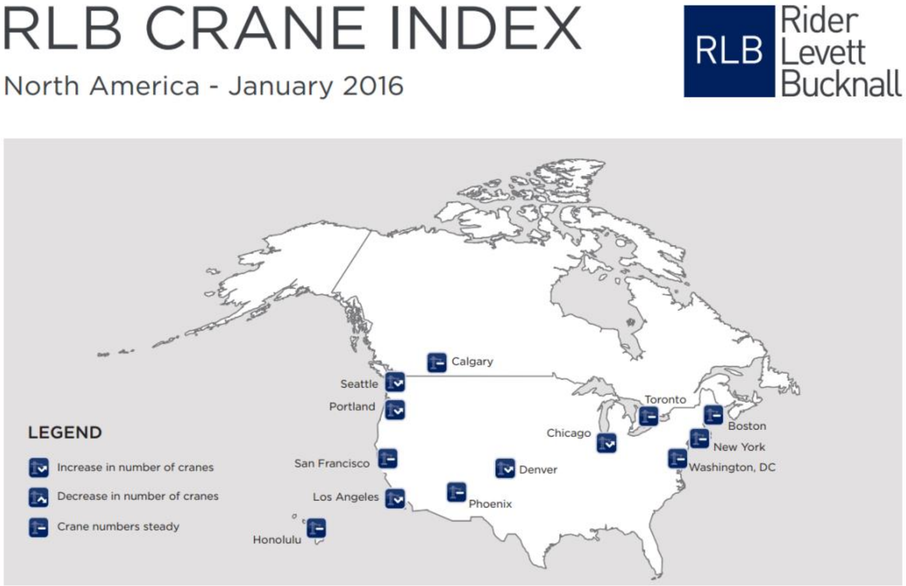
CRANE COUNT

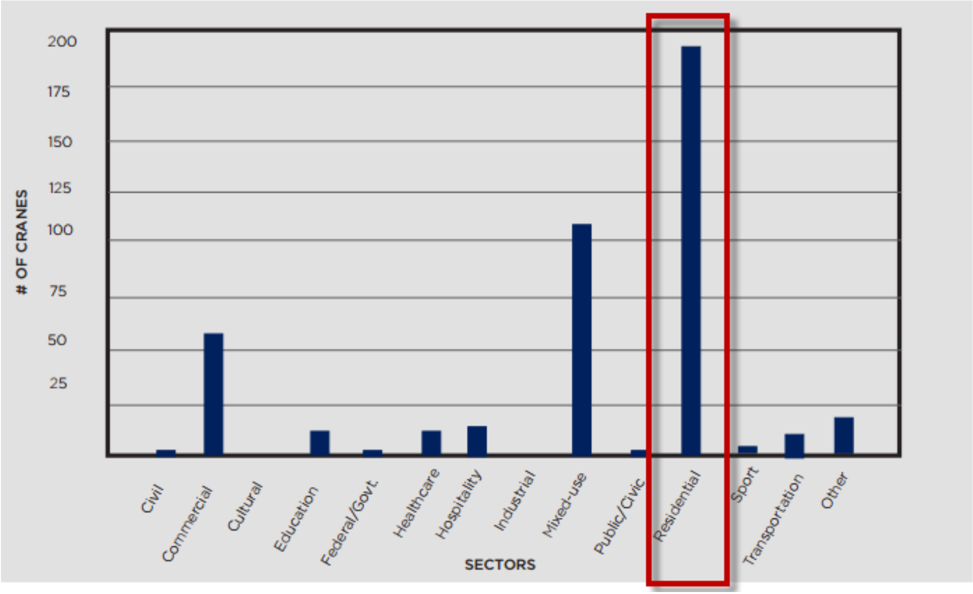


Sydney appears primed with future supply.

Data Source: RLB

CRANE COUNT: NORTH AMERICA





Source: RLB Crane Index, North America

NORTH AMERICA HAS 194 RESIDENTIAL CONSTRUCTION CRANES IN OPERATION

Residential Construction Cranes: Sydney: 239, Melbourne: 124, Brisbane: 91, Perth: 25
North America: 194 (NYC, DC, Boston, Toronto, Chicago, Denver, Phoenix, LA, SF, Portland, Seattle, Calgary)

CRANE COMPARISON: ~14-FOLD

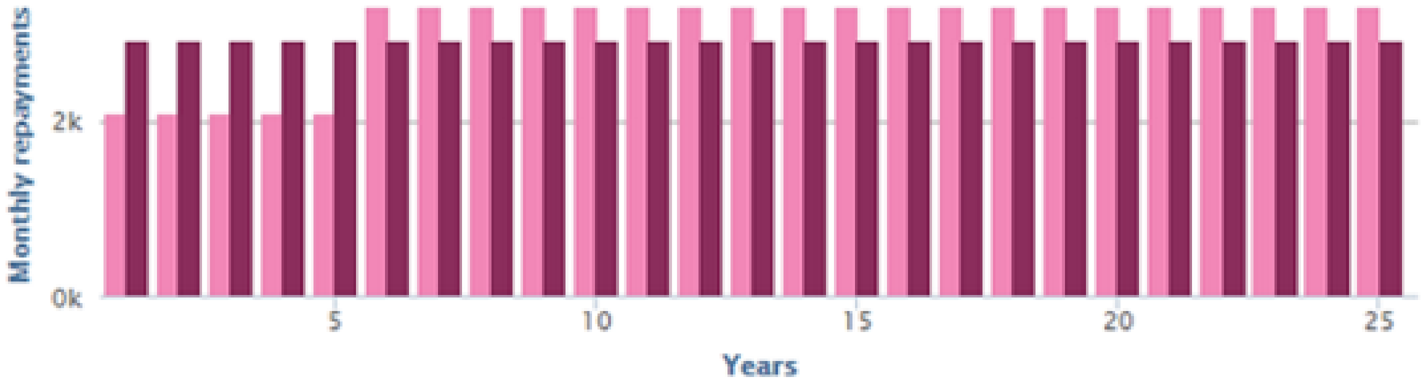
Populations (000s) & GDP ($ Billions) Vs. Residential Construction Crane Counts

North American MSAs	Pop	GDP	Australian Cities	Pop	GDP
New York City	20,182	1,558	Sydney	4,840	353
Washington, DC	6,097	471	Melbourne	4,440	276
Boston	4,774	382	Brisbane	2,274	147
Toronto	6,054	323	Perth	2,021	149
Chicago	9,551	610	Adelaide	1,304	73
Denver	2,814	187	Canberra	422	35
Phoenix	4,574	215	Darwin	140	9
Los Angeles	13,340	866	Gold Coast	614	27
San Francisco	4,656	411	Newcastle	430	14
Portland	2,389	159			
Seattle	3,733	300			
Calgary	1,230	98			
Total	**79,394**	**5,580**	**Total - Top 4 Cities**	**13,575**	**925**
			Total - Top 9 Cities	**16,485**	**1,083**
Residential Crane Count - 12 Cities	**194**	**194**	**Residential Crane Count - 4 cities**	**479**	**479**
			Residential Crane Count - 9 cities	**525**	**525**
People per Crane (000s)	**409**		**People per Crane (000s) - Top 4**	**28**	
GDP dollars per Crane ($Bns)		**$28.8**	**GDP dollars per Crane ($Bns) - Top 4**		**$1.9**
People per Crane (000s)	**409**		**People per Crane (000s) - Top 9**	**31**	
GDP dollars per Crane ($Bns)		**$28.8**	**GDP dollars per Crane ($Bns) - Top 9**		**$2.1**

Source: RLB Crane Index, Dept of Commerce, BEA, Census Bureau, StatCan, ABS

There are ~2.5x as many residential construction cranes in Australia's 4 largest cities as there are in 12 of the largest cities in North America, but this still understates the situation. **Adjusting for population, per capita there are 14.6x as many cranes (409k/28k), and vs GDP, there are 14.9x as many ($28.8/$1.9).**

INTEREST ONLY LOAN EXAMPLE



Interest-only mortgage:

Monthly repayments (5 years):	$2,083
Monthly repayments (20 years):	$3,300
Total cost:	**$916,947**

Principal & interest mortgage:

Monthly repayments (25 years):	$2,923
Total cost:	**$876,885**

You will pay $40,062 more with an interest-only mortgage over the life of the loan.
After 5 years your monthly repayments will increase by $1,216.

Source: ASIC's MoneySmart
https://www.moneysmart.gov.au/borrowing-and-credit/home-loans/interest-only-mortgages

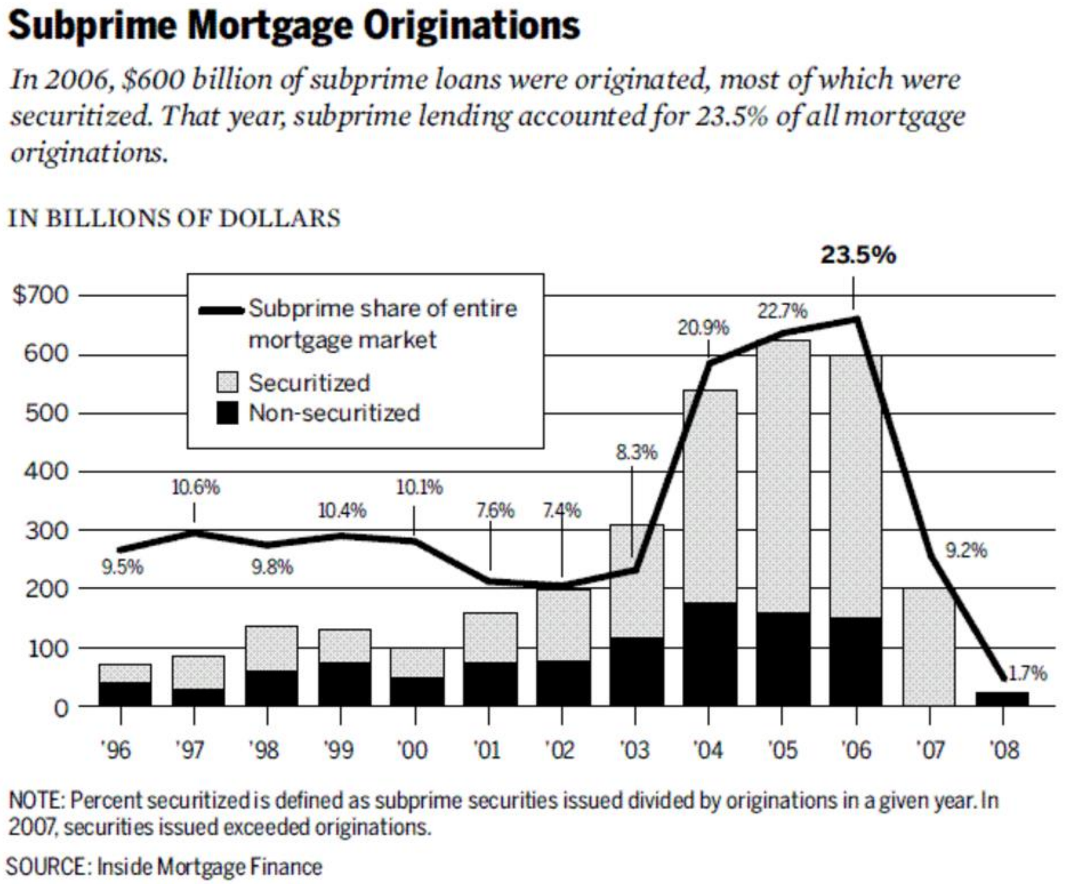
$500k loan
5% interest rate
25 yr term
IO period of 5 yrs

$2,083 payment in IO
$3,300 payment after
VS
$2.9k payment for non-IO loan

+58% payment shock after the 5yr IO term expires.

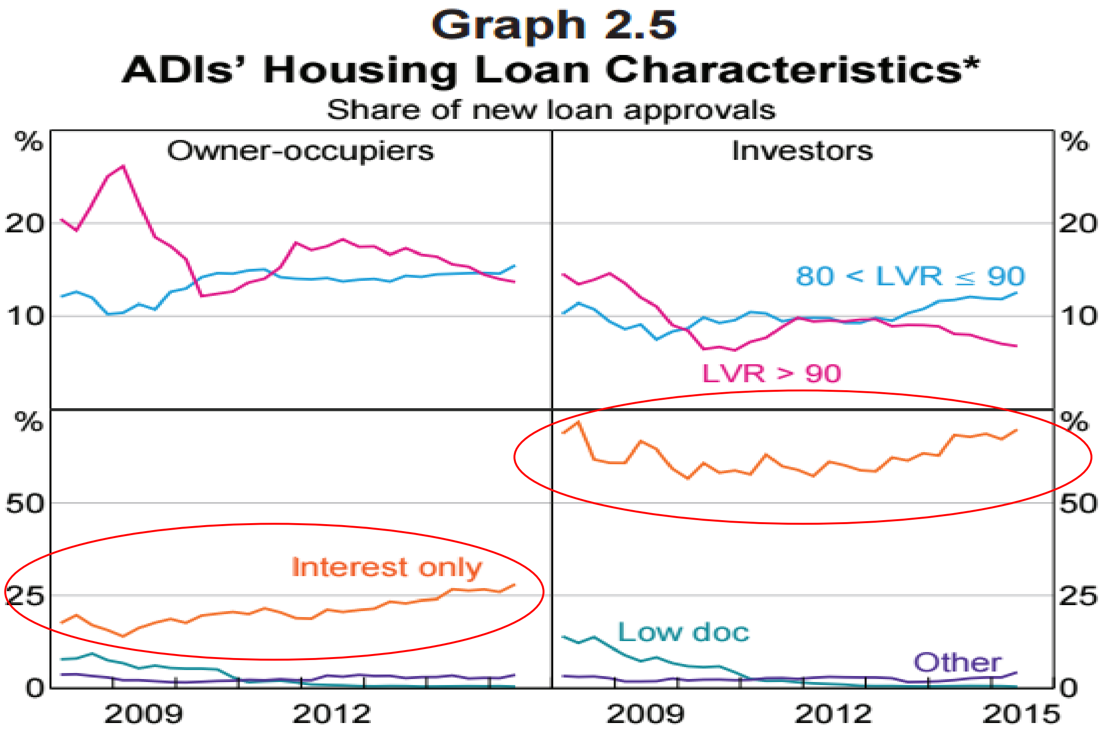
Lower initial payments can attract borrowers to a loan that they may not be able to afford when the IO period ends.

US SUBPRIME ORIGINATIONS



In 2004-2006, US subprime mortgage originations ran between $500-600 billion per year, roughly 5-6x what they were from 1996-2001 and ~3x what they were in 2002. One of the tell tale signs of a problem is a rapid and large increase in the use of an "exotic" product that facilitates affordability.

INTEREST ONLY LOANS BY CATEGORY



* Series are break-adjusted for reporting changes; 'Other' includes loans approved outside normal debt-serviceability policies and other non-standard loans

Sources: APRA; RBA

This chart comes from the October, 2015 Financial Stability Review published by RBA. What's interesting is that it shows how nearly 75% of investor loans are interest only, while the share of owner-occupier interest only loans has also been rising steadily. Affordability issues, anyone?

NEGATIVE GEARING: INVESTING FOR LOSSES

What is it?

Australians intentionally buy investment property that produces losses, both from mortgage interest expense and operating expenses

Why?

1. They get to claim those loses against their taxable income
2. The capital gains from their property are sure to outpace the operational losses… right?

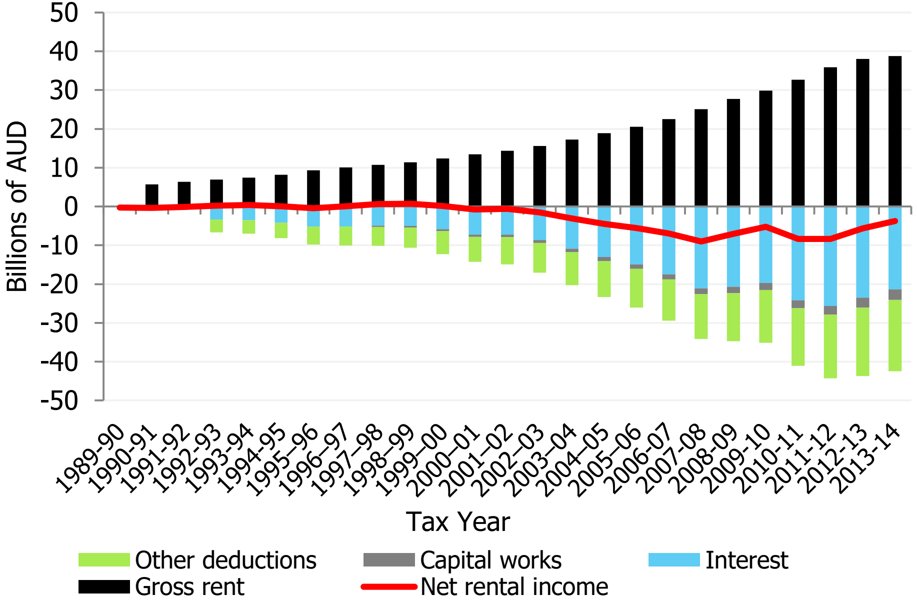
Spoiler alert

- This will not end well when the property bubble bursts.

Negative gearing is (and should be) a truly bizarre concept to an investor, but it makes perfect sense to most Australians because home prices have only ever gone up for the last 25 years. There is a pervasive and genuine belief that they can't lose.

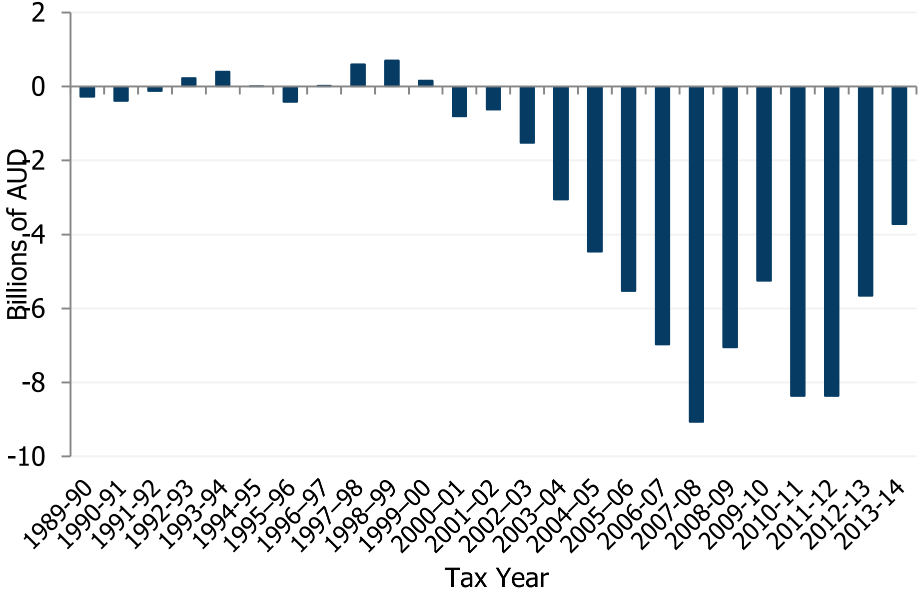
NET RENTAL LOSSES

AUSTRALIAN RENTAL INCOME AND EXPENSES



Source: Australian Tax Office

AUSTRALIAN NET RENTAL INCOME



Source: Australian Tax Office

NEGATIVE GEARING NOW PRODUCES ANNUAL LOSSES IN THE 4-8 BN RANGE

Australian property investors are now solely in it to win it on capital appreciation. That’s because there are few properties left where they can make money from an operating standpoint. Bear in mind that the above charts don’t include any principal payments – those losses are being generated solely from what are effectively interest only loans.

HOME EQUITY WITHDRAWAL

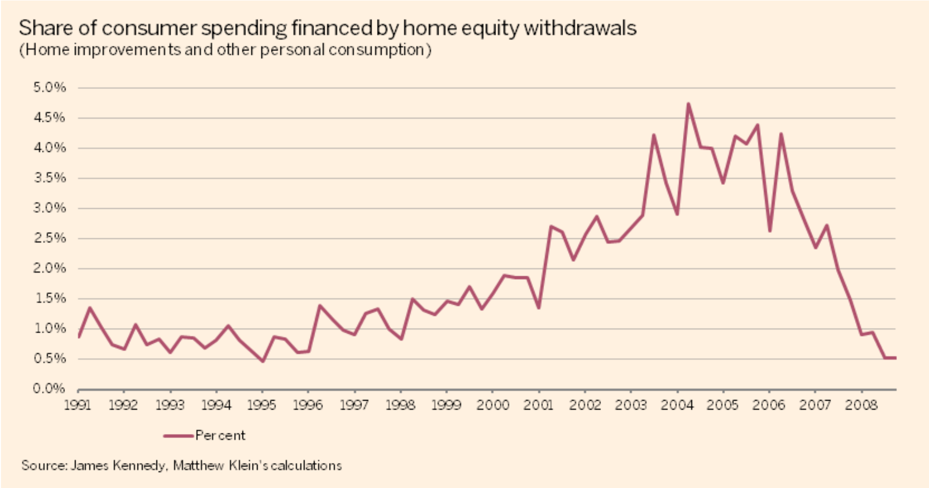
AUSTRALIA

The IMF (Klyuev and Mills) and the Australian Housing and Urban Research Institute (Ong) find HEW to have been 13-15% of disposable income in any given year during 2001-08.

Source: Melbourne Institute
https://www.melbourneinstitute.com/downloads/hilda/Bibliography/Other_Publications/2013/Ong_etal_Assets_debt_and_the_drawdown_of_housing_equity_by_an_ageing_population.pdf

UNITED STATES

HEW reached a peak of 4~4.5% consumers spending in the US in 2004-2006.



Source: Financial Times

AUSTRALIANS HAVE BEEN SUPPLEMENTING THEIR INCOME FOR A LONG TIME

IMF estimates find that Australian Home Equity Withdrawal has been fueling as much as 13-15% of disposable income from the 2001-2008 period – the period evaluated in the study.

INCIDENCE AND AMOUNT OF HEW

INCIDENCE OF HEW AMONG OLDER HOME OWNER HOUSEHOLDS, BY AGE BAND, 2001-10

Year		Age groups				All
		45–54 yrs	55–64 yrs	65–74 yrs	75+ yrs	
2001–02	Pop ('000)	271.5	91.2	27.0	37.9	427.5
	% within age band	23.0%	10.6%	4.1%	7.1%	13.2%
2002–03	Pop ('000)	376.8	120.6	51.1	19.6	568.1
	% within age band	30.5%	13.3%	7.6%	3.6%	16.9%
2003–04	Pop ('000)	313.8	139.6	26.0	20.8	500.2
	% within age band	26.5%	14.5%	3.9%	3.7%	14.8%
2004–05	Pop ('000)	357.9	176.7	29.4	28.5	592.6
	% within age band	30.1%	17.7%	4.3%	4.9%	17.2%
2005–06	Pop ('000)	324.5	141.3	58.2	27.6	551.6
	% within age band	26.6%	14.7%	8.4%	4.7%	15.9%
2006–07	Pop ('000)	402.1	182.6	33.1	30.0	647.8
	% within age band	32.8%	17.0%	4.9%	5.0%	18.1%
2007–08	Pop ('000)	329.3	186.8	49.1	29.2	594.4
	% within age band	25.7%	16.9%	7.0%	4.8%	16.1%
2008–09	Pop ('000)	308.6	193.1	55.1	34.1	590.9
	% within age band	24.8%	17.0%	7.8%	5.6%	16.0%
2009–10	Pop ('000)	355.8	238.1	54.4	30.0	678.2
	% within age band	28.8%	20.4%	7.5%	4.7%	18.0%
All	Pop ('000)	3,040.4	1,470.0	383.3	257.5	5,151.3
	% within age band	27.2%	15.6%	6.0%	5.1%	16.0%

Source: Authors' own calculations from the 2001–10 HILDA Survey

Note: a. Estimates are population weighted using cross-section population weights from every wave of the HILDA Survey.

MEAN AND MEDIAN AMOUNTS OF HOUSING EQUITY WITHDRAWN BY OLDER HOME EQUITY HOUSEHOLDS WHO ENGAGE IN HEW AT 2010 PRICE LEVELS, BY AGE BAND, 2001-10, $000

Year		Age groups				All
		45–54 yrs	55–64 yrs	65–74 yrs[b]	75+ yrs[b]	
2001–02	Mean	93.1	87.1	59.2	191.2	98.4
	Median	38.7	25.8	22.4	228.3	40.0
2002–03	Mean	109.0	113.0	97.3	172.2	111.0
	Median	37.5	42.5	72.5	37.5	42.5
2003–04	Mean	123.8	114.9	112.7	154.1	122.0
	Median	43.9	40.3	108.6	122.0	46.4
2004–05	Mean	105.9	144.5	63.5	153.7	117.6
	Median	45.2	71.4	28.6	125.0	55.9
2005–06	Mean	112.5	174.9	160.2	126.6	134.2
	Median	46.4	34.8	148.5	46.4	46.4
2006–07	Mean	104.4	125.2	224.3	206.4	121.1
	Median	44.8	56.0	61.6	123.2	50.4
2007–08	Mean	121.4	152.2	233.3	222.7	145.3
	Median	39.2	54.5	98.0	119.9	54.5
2008–09	Mean	118.9	164.6	127.6	176.7	138.0
	Median	50.9	52.5	52.5	157.0	52.5
2009–10	Mean	113.9	125.6	131.5	202.3	123.3
	Median	30.9	61.8	61.8	103.0	42.2
All	Mean	111.5	136.6	140.2	180.4	124.2
	Median	42.0	54.5	61.8	119.9	49.1

Source: Authors' own calculations from the 2001–10 HILDA Survey

Notes: a. Estimates are population weighted using cross-section population weights from every wave of the HILDA Survey.

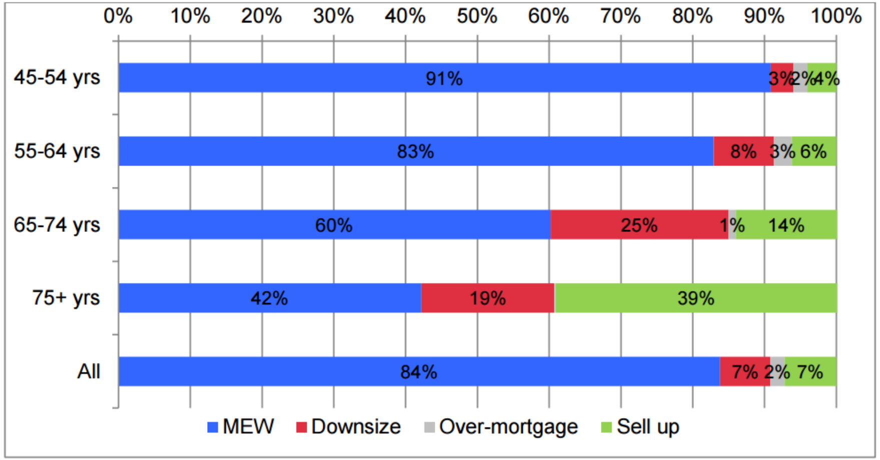
b. There are less than 30 cases in each cell under the 65–74 years group and 75 years and over group. Hence, estimates for these groups should be interpreted with caution.

- ~83bn AUD was withdrawn by those 45 YOA+ in the year 2009/2010, which is roughly 7-8% of 2010 GDP of 1.14 Tn
- ~70bn AUD (83%) of which is in situ MEW = 6.1% GDP / but this is just from those 45 and older.
- Assumption: 20-45 probably at least as much MEW as 45-64, or roughly another 70bn AUD, so ~12% GDP.

Source: Melbourne Institute
https://www.melbourneinstitute.com/downloads/hilda/Bibliography/Other_Publications/2013/Ong_etal_Housing_equity_withdrawal_uses_risks_and_barriers_to_alternative_mechanisms_in_later_life.pdf

HOME EQUITY WITHDRAWAL BY TYPE

Figure 3: Distribution of HEW type among older home owner households who engaged in HEW during 2001–10, by age band, per cent by row[a]



Source: Authors' own calculations from the 2001–10 HILDA Survey

Note: a. The percentages are calculated from 2561 episodes of 45–54-year olds, 1105 episodes of 55–64-year olds, 323 episodes of 65–74-year olds, and 221 episodes of 75-year and over olds.

Table 9: Incidence of MEW among homeowners, by age band, 2001–10, per cent

Year	25–34 yrs	35–44 yrs	45–54 yrs	55–64 yrs	65+ yrs
% of homeowners who engaged in MEW					
2001–02	26.5	26.0	18.4	8.3	2.0
2002–03	33.3	30.3	24.9	10.5	3.8
2003–04	34.0	27.3	23.1	9.9	1.5
2004–05	34.0	33.2	25.8	12.7	3.7
2005–06	30.7	32.2	23.0	10.1	3.0
2006–07	28.8	33.7	28.8	14.3	2.5
2007–08	30.1	30.2	23.4	13.6	3.8
2008–09	29.6	27.3	22.4	15.1	3.1
2009–10	24.7	27.1	24.3	16.0	4.0
% point change in the incidence of MEW					
2001–02 to 2006–07 (boom period)	2.3	7.7	10.4	6.0	0.6
2007–08 to 2009–10 (post-GFC)	-5.4	-3.1	0.8	2.4	0.2
2001–02 to 2009–10	-1.9	1.1	5.9	7.7	2.0

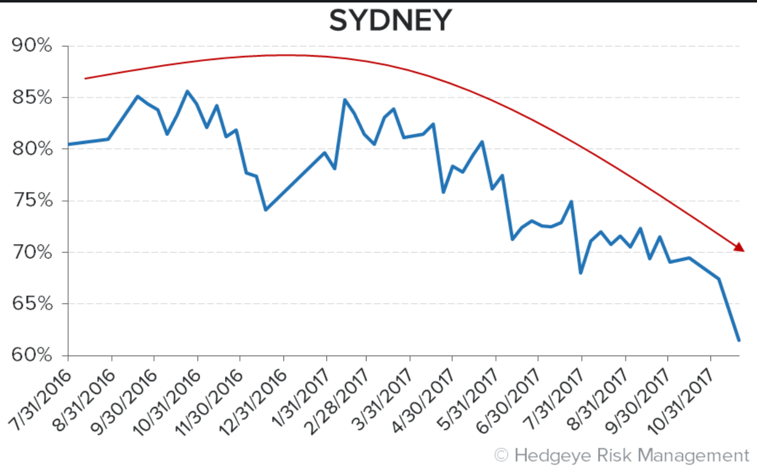
Source: Authors' own calculations from the 2001–10 HILDA Survey

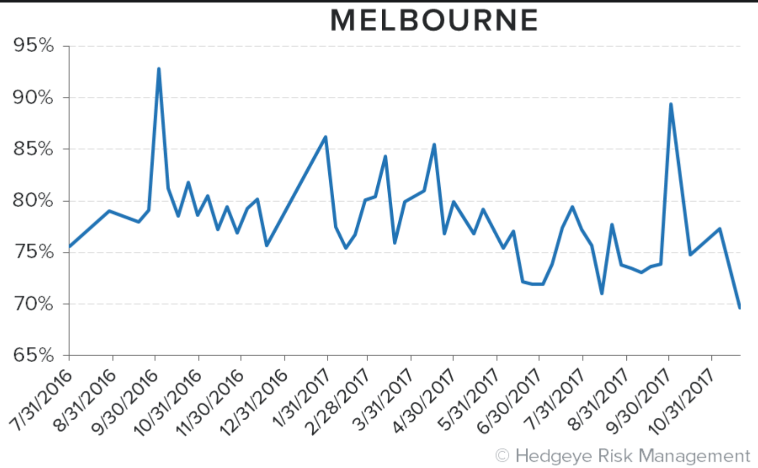
Source: Melbourne Institute
https://www.melbourneinstitute.com/downloads/hilda/Bibliography/Other_Publications/2013/Ong_etal_Housing_equity_withdrawal_uses_risks_and_barriers_to_alternative_mechanisms_in_later_life.pdf

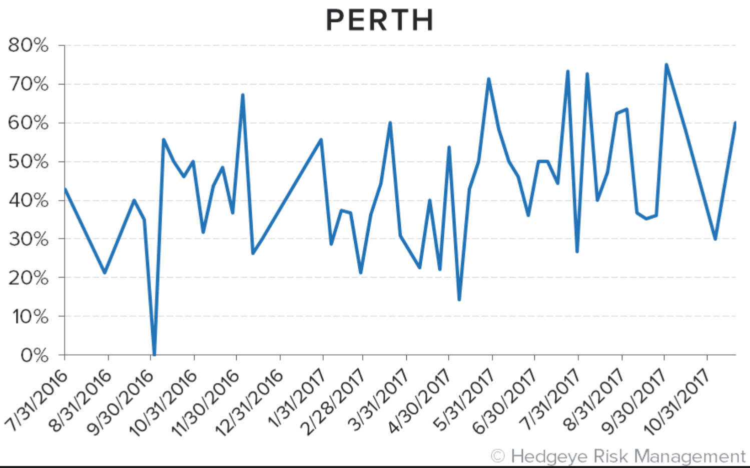
YOUNGER HOMEOWNERS ARE INDEED TAPPING HOME EQUITY

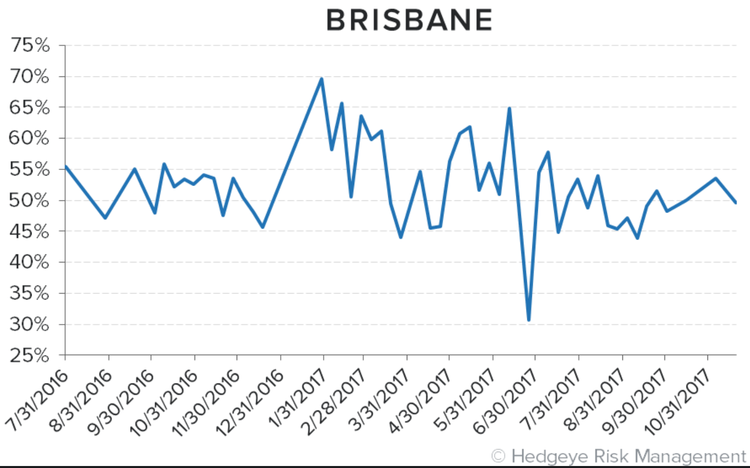
The table on the right shows that those 25-34 and 35-44 are engaging in equity withdrawal at rates equal to or greater than those 45-54, who withdrew the largest single chunk of equity in the 45 and older study.

CLEARANCE RATES





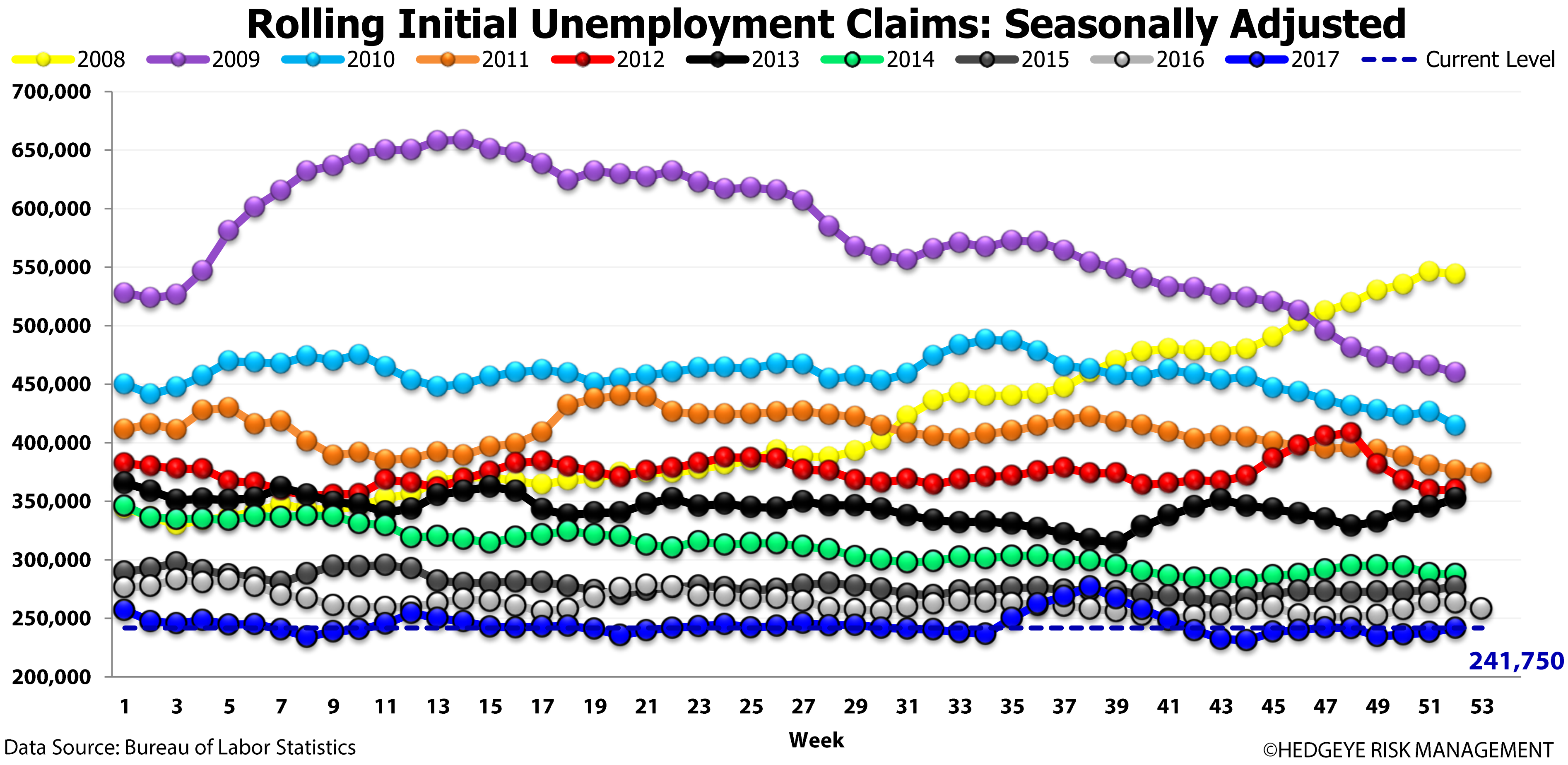




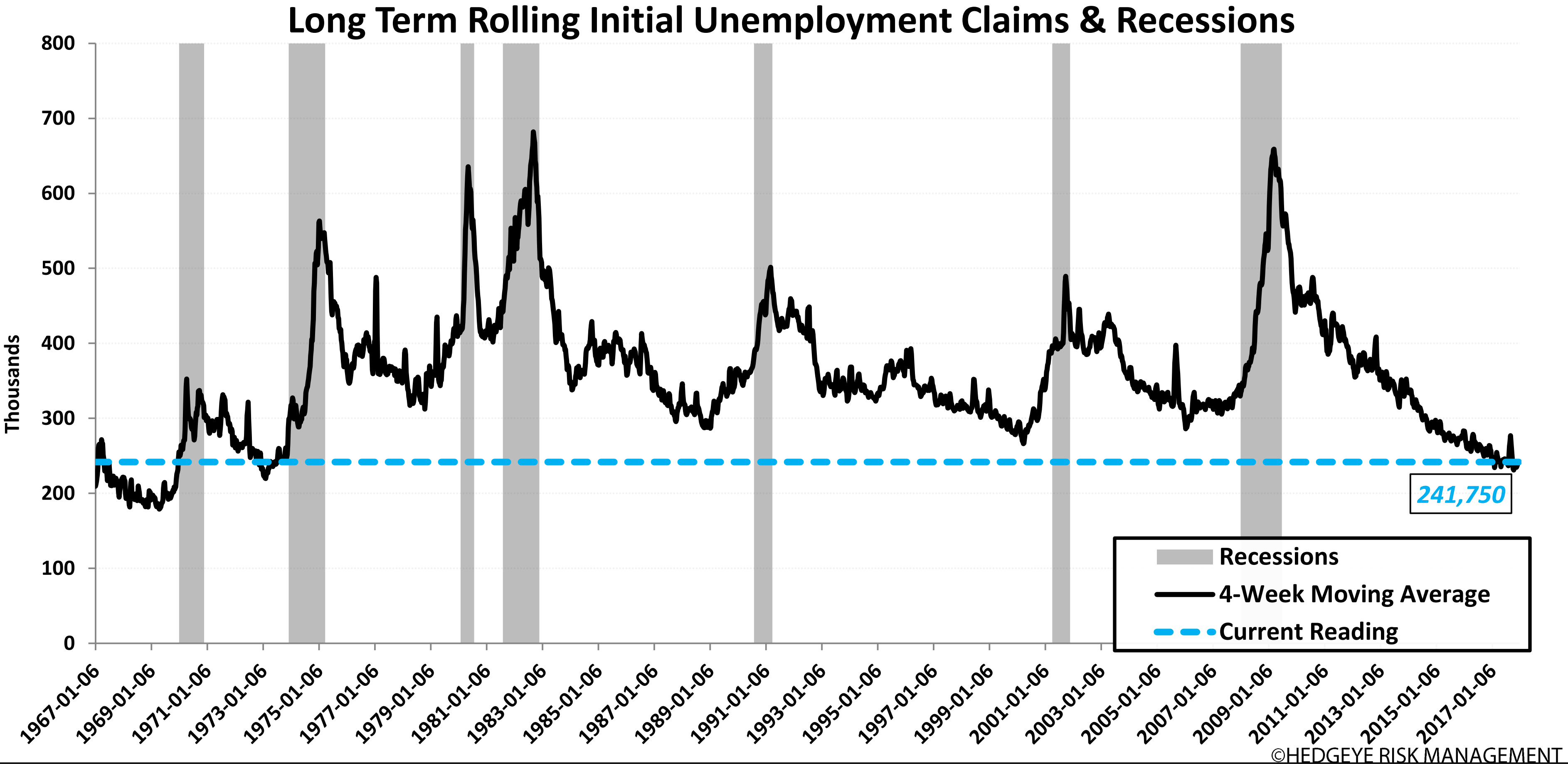
Data Source: CoreLogic

THE U.S.

THE US LABOR MARKET IS VERY STRONG



DWELLING ALONG HISTORICAL LOWS



Data Source: BLS

HOUSING COMPENDIUM- GREEN ACROSS THE BOARD

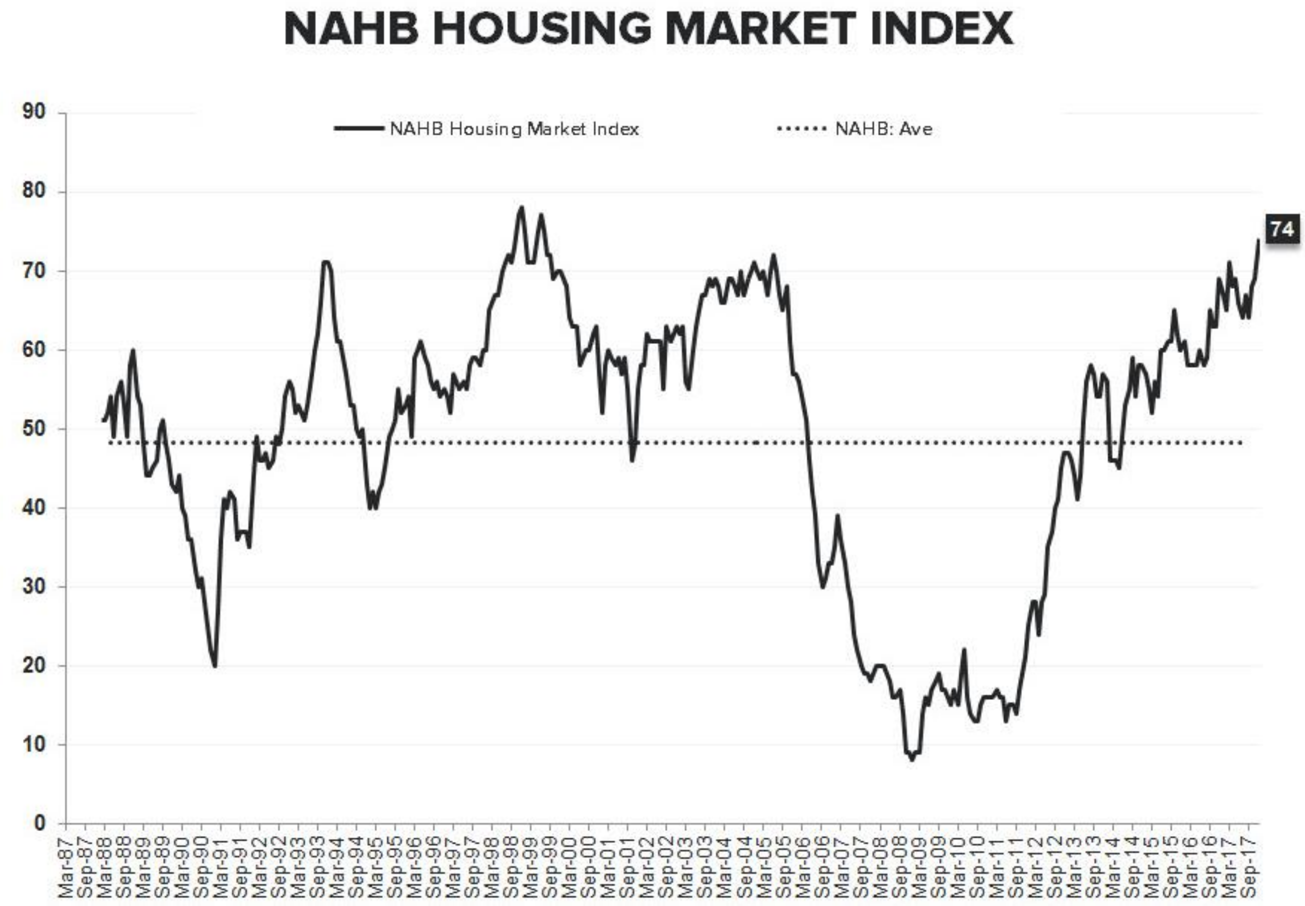
HEDGEYE HOUSING COMPENDIUM

		Most Recent Data			TRADE/TREND/TAIL			Rate of Change		
					Short Term	Intmed Term	Long Term	Short Term	Intmed Term	Long Term
		Period	Latest Data	Last Price	Prior Period	3M Ago	12M Ave	MoM Chg	3M Chg	vs 12M Avg
Home Prices	Case-Shiller 20 City HPI YoY NSA	Oct-17	Better	6.4%	6.2%	5.8%	5.7%	0.2%	0.6%	0.7%
	Case-Shiller 20 City HPI MoM SA	Oct-17	Worse	0.7%	1.0%	0.4%	0.5%	-0.3%	0.3%	0.2%
	Corelogic HPI - NSA YoY % Chg	Sep-17	Better	6.4%	6.2%	5.9%	5.7%	0.2%	0.4%	0.6%
	Corelogic (Ex-Dist.) HPI - NSA YoY % Chg	Sep-17	Better	5.6%	5.3%	5.1%	4.8%	0.3%	0.5%	0.8%
	FHFA HPI - NSA YoY % Chg	Oct-17	Better	6.6%	6.6%	6.6%	6.6%	0.1%	0.0%	0.0%
Supply & Demand: Existing	MBA Purchase Apps Index (Mo. Ave)	Dec-17	Better	244.3	235.1	233.7	237.4	3.9%	4.5%	2.9%
	NAR: Pending Home Sales (Index)	Nov-17	Better	109.5	109.3	106.0	108.9	0.2%	3.3%	0.6%
	NAR: Existing Home Sales (SAAR)	Nov-17	Better	5.81	5.50	5.35	5.55	5.6%	8.6%	4.7%
	NAR: Existing Home Inv. (millions units)	Nov-17	Better	1.67	1.80	1.87	1.82	-7.2%	-10.7%	-8.2%
	NAR: Existing Home Inv: Months Supply	Nov-17	Better	3.45	3.93	4.19	3.94	-12.2%	-17.8%	-12.5%
Supply & Demand: New Homes	NAHB: HMI	Dec-17	Better	74	69	64	68	5.0	10.0	0.1
	Census: Total Starts	Nov-17	Better	1297	1256	1172	1201	3.3%	10.7%	8.0%
	Census: SF Starts	Nov-17	Better	930	883	871	844	5.3%	6.8%	10.2%
	Census: Total Permits	Nov-17	Worse	1298	1316	1272	1247	-1.4%	2.0%	4.1%
	Census: SF Permits	Nov-17	Better	862	850	800	815	1.4%	7.7%	5.8%
	Resi Construction Spending (in Billions)	Oct-17	Better	524	522	520	513	0.4%	0.8%	2.1%
	Census: New Home Sales	Nov-17	Better	733	624	559	609	17.5%	31.1%	20.4%
	Census: New Home Inventory (000)	Nov-17	Worse	288	287	284	270	0.3%	1.4%	6.5%
Miscellaneous	Interest Rates (30 Year FRM)	Dec-17	Better	4.18%	4.19%	4.07%	4.23%	0.0%	0.1%	0.0%
	NAR: Affordability Index (Composite)	Oct-17	Better	161.1	159.2	151.6	160.0	1.2%	6.3%	0.7%
	ITB Price (EOP)	Dec-17	Better	42.63	40.79	34.95	33.87	4.5%	22.0%	25.9%
	XHB Price (EOP)	Dec-17	Better	43.44	41.59	38.81	38.14	4.4%	11.9%	13.9%

Source: Hedgeye Risk Management, S&P, Corelogic, FHFA, MBA, NAR, NAHB, Census Dept., Factset, Bloomberg

HEDGEYE

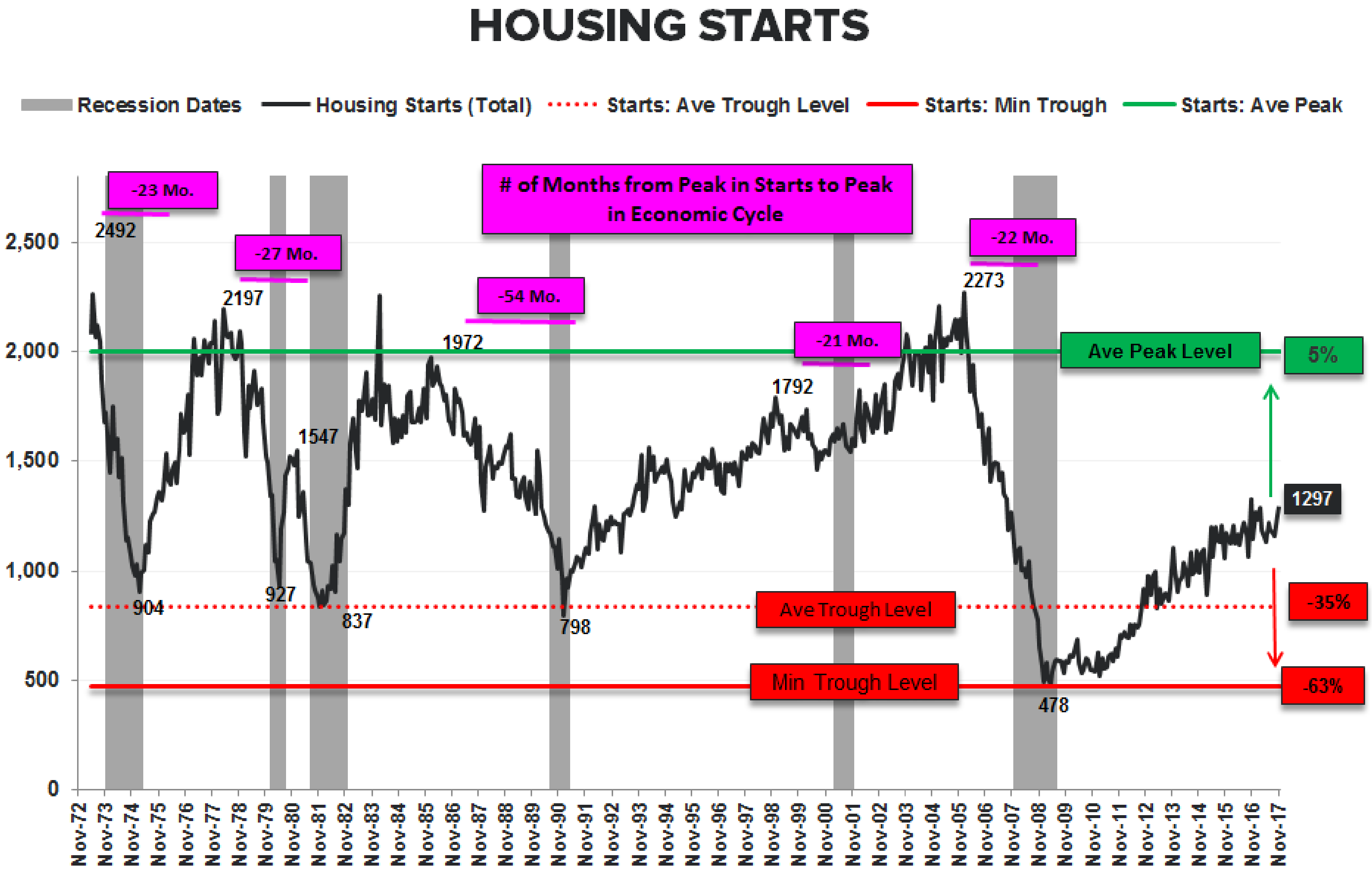
BUILDER CONFIDENCE- 18 YEAR HIGHS



Given the continued favorability of demand side tailwinds, such as low unemployment rates, favorable demographics and tightness in the existing home supply, it is no surprise that new highs were hit.

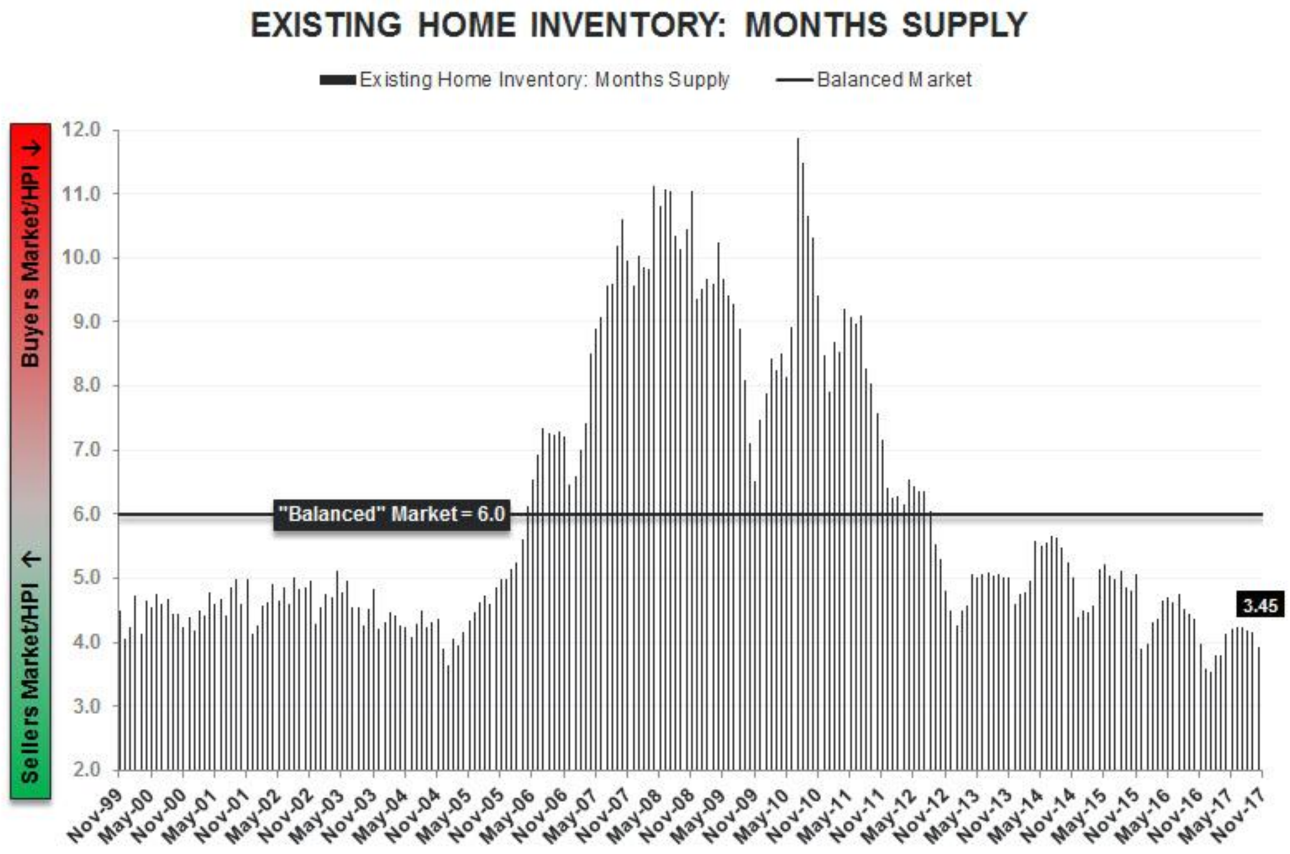
This strong confidence should continue on the back of the now-passed tax reform bill and continued improvement in aggregate growth.

STILL ROOM TO RUN



DATA SOURCE: BLOOMBERG, NBER, CENSUS BEREAU, HRM

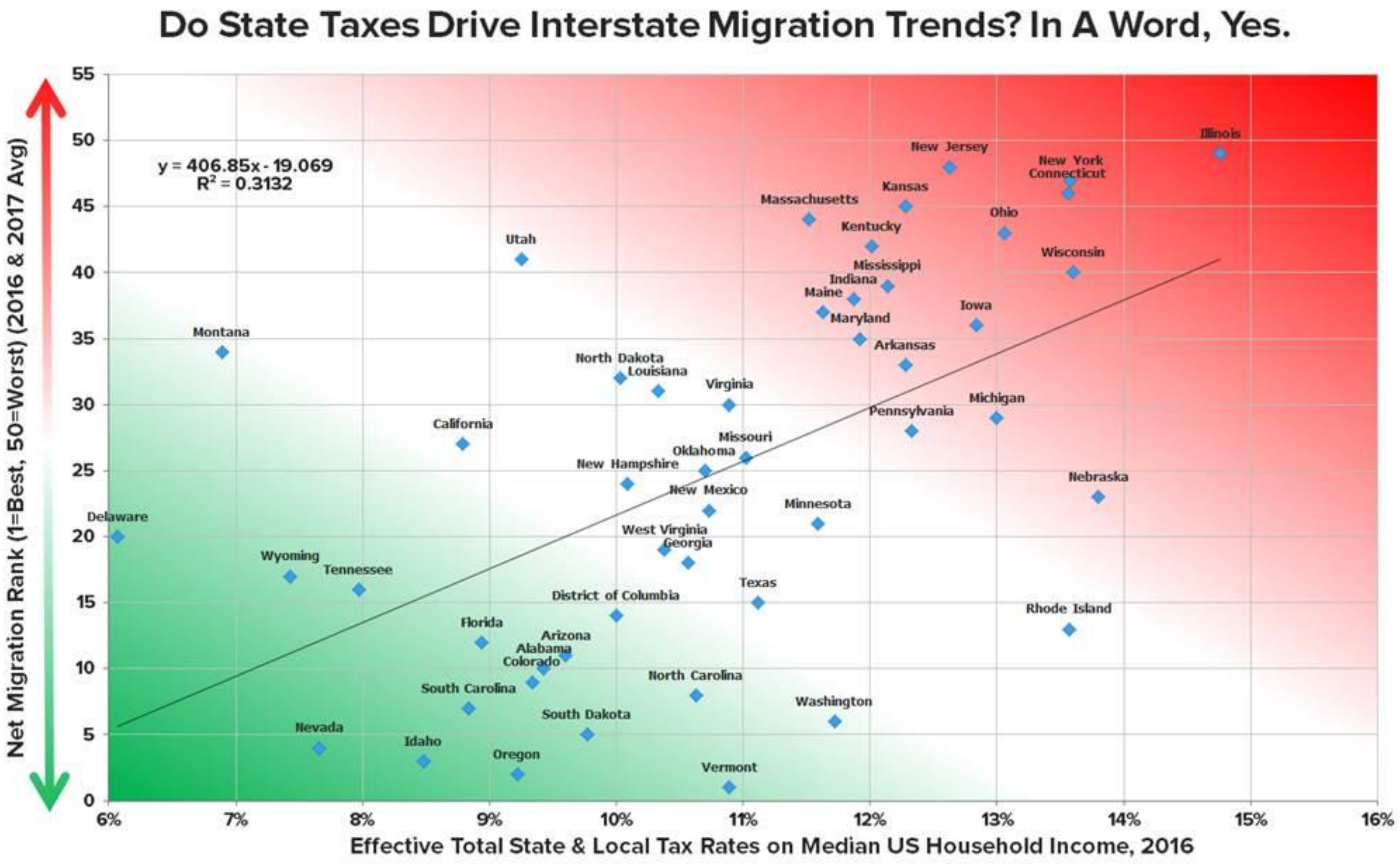
SUPPLY SHORTAGE



DATA SOURCE: NAR, BLOOMBERG

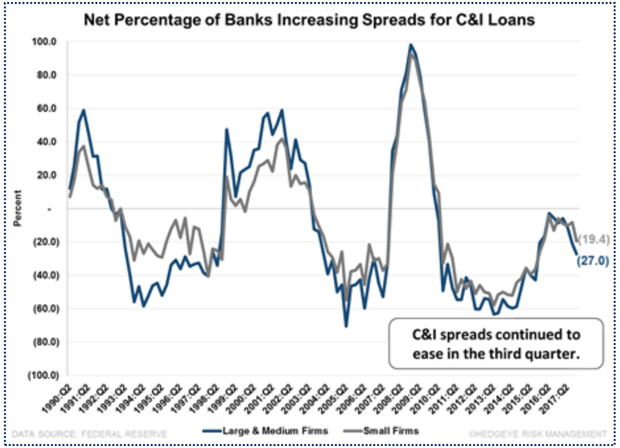
The supply of homes for sale across the US sits at historic lows.

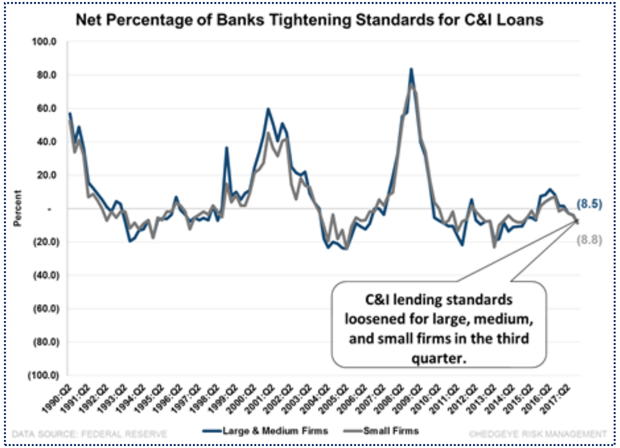
CHANGES UNDER TAX CUTS AND JOBS ACT A CONCERN

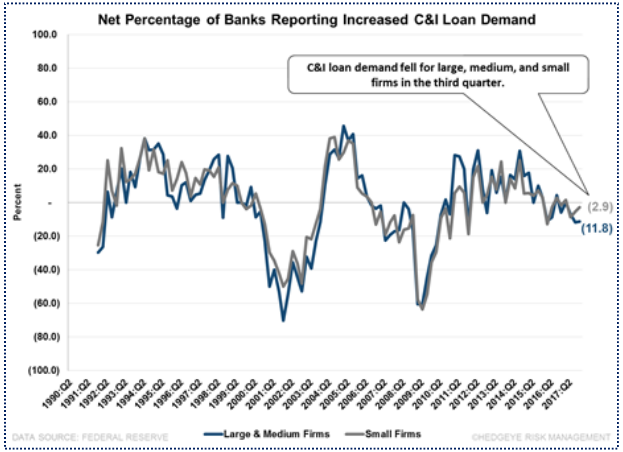


DATA SOURCE: United Van Lines, Wallethub.com

COMMERCIAL LENDING: C&I LOANS







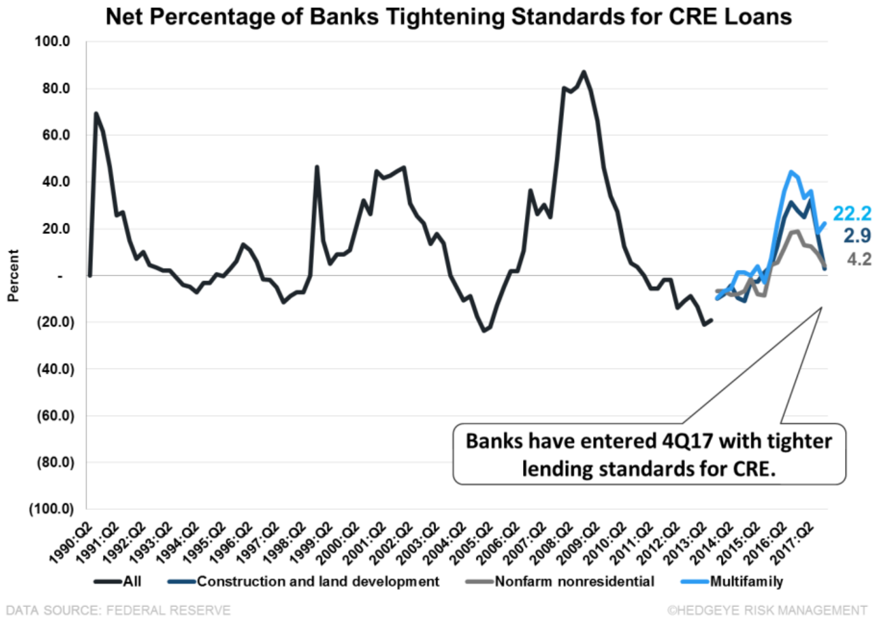
DECREASING SPREADS

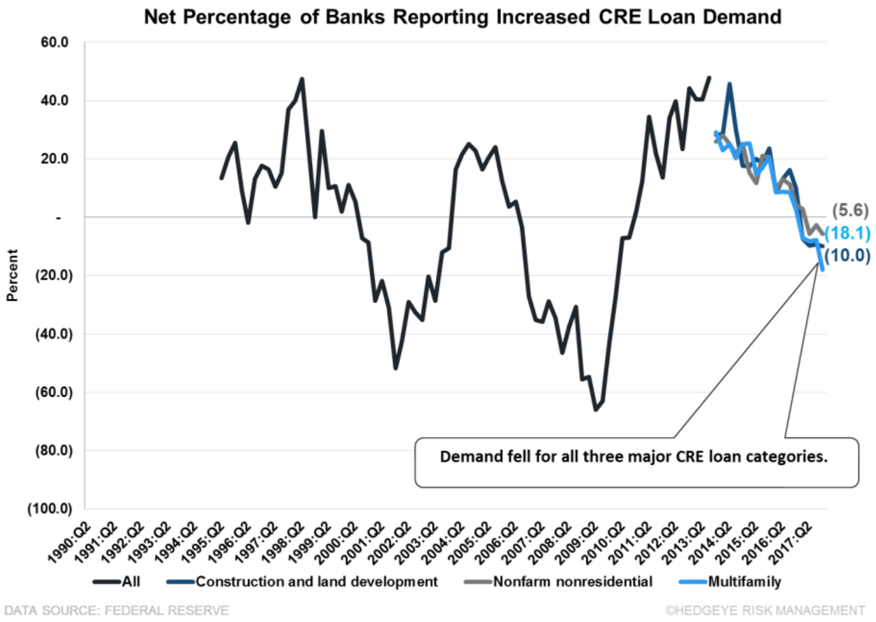
LOOSENING STANDARDS

DORMANT DEMAND

Falling spreads and looser underwriting standards for C&I loans amid weaker demand reflect an increasing level of competition in the loan category. In due part, C&I demand had likely been struggling to respond to the easing lending conditions based on uncertainty around the timing and magnitude of pro-growth fiscal and regulatory reform, particularly the prior state of corporate tax reform. Moreover, the 3Q17 survey reveals that bank debt continues to lose favor with CFOs as friendly capital markets conditions and competition from commercial finance companies pull demand away from traditional bank sources of funding.

COMMERCIAL LENDING: COMMERCIAL REAL ESTATE



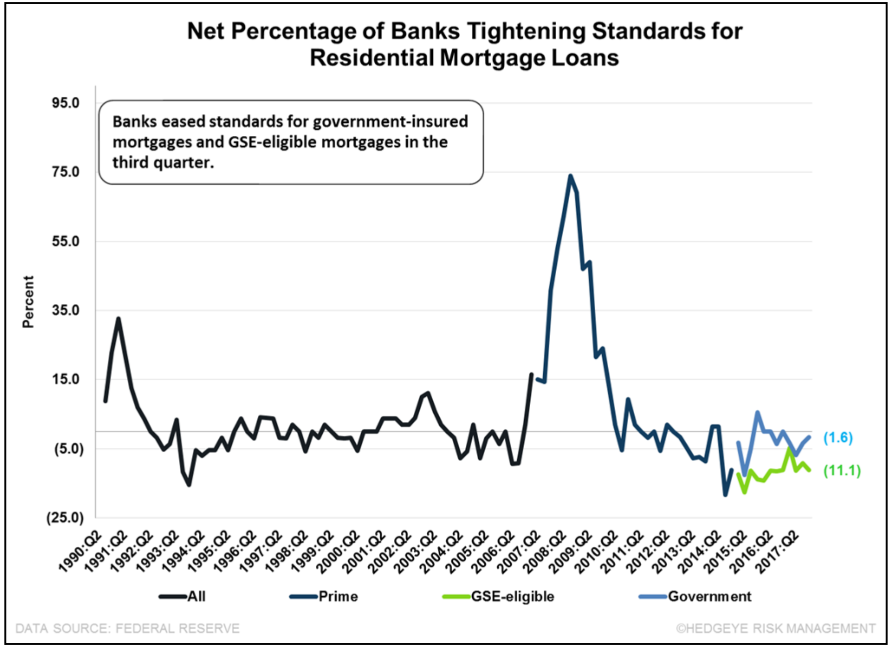


TIGHTENING STANDARDS

WEAKENING DEMAND

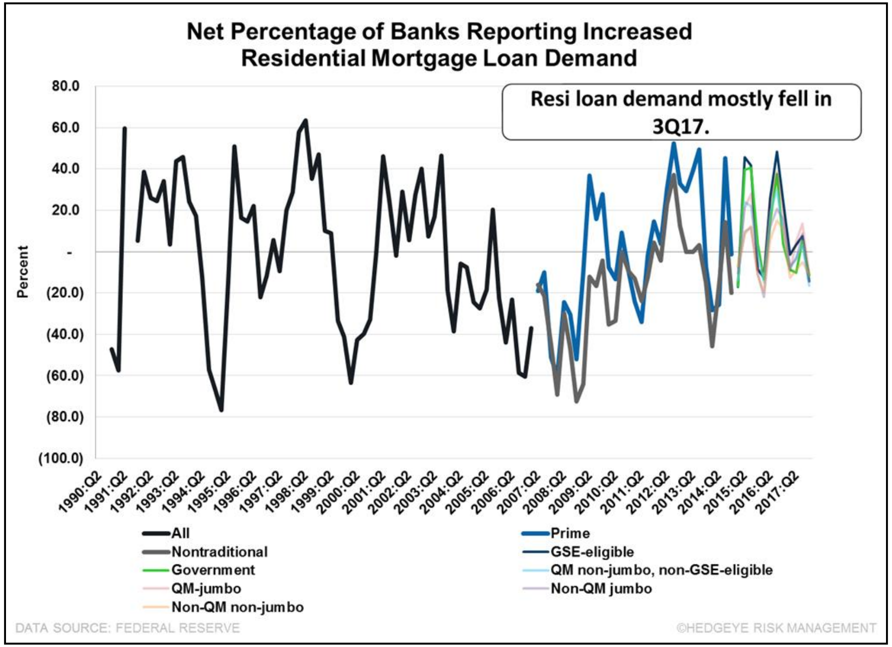
Banks continue to exercise caution over particular loan categories, namely commercial real estate as underwriting standards continue to tighten. However, because of the destruction left behind by the extraordinarily harsh hurricane season, it is possible for CRE demand to pick up over the next couple of quarters.

CONSUMER LENDING: RESIDENTIAL MORTGAGES



LOOSENING STANDARDS

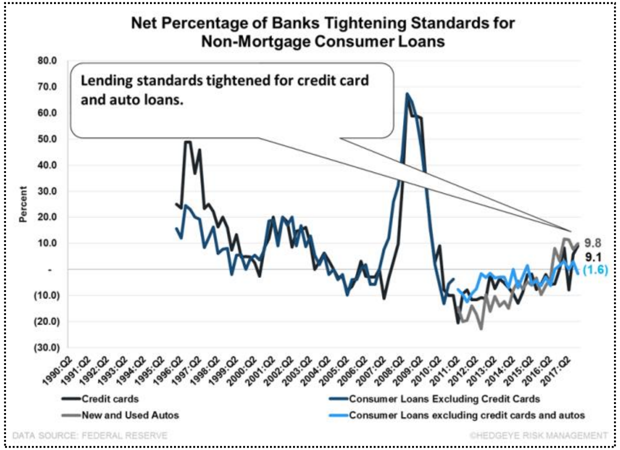
Banks reported looser underwriting standards across effectively all residential loan categories.

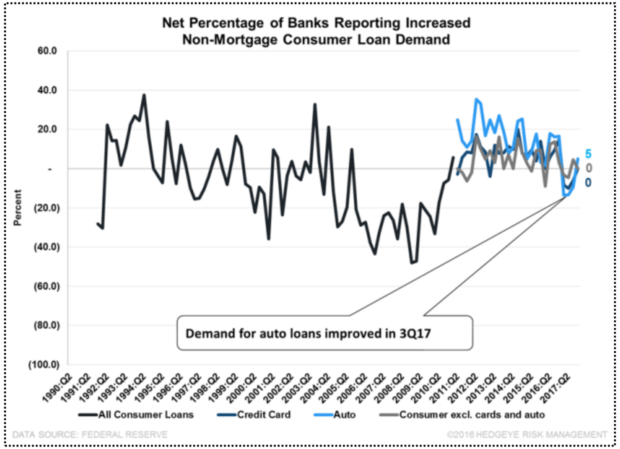


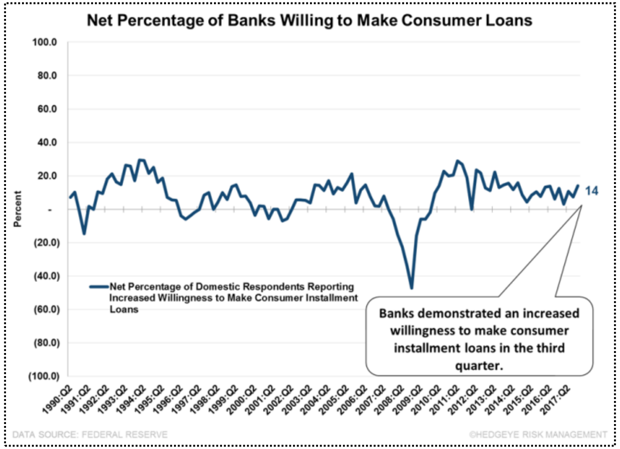
WEAKENING DEMAND

While banks reported weaker demand across all categories of mortgage loans.

CARDS, AUTO, AND OTHER NON-MORTGAGE CONSUMER







DECREASING SPREADS

Banks tightened underwriting standards for both credit cards and auto loans in 3Q17. Lenders have now reported tighter auto lending criteria for six consecutive quarters.

LOOSENING STANDARDS

However, auto loan demand was reported higher in the third quarter after having weakened successively from 4Q16 to 2Q16. Demand for credit card loans was reported as unchanged.

STRONG APPETITE

Lenders are maintaining an open appetite for consumer installment loans.

INSTITUTIONAL

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