

Australia And New Zealand Structured Finance Scenario And Sensitivity Analysis: Understanding The Effects Of Macroeconomic Factors On Credit Quality

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Australia And New Zealand Structured Finance Scenario And Sensitivity Analysis: Understanding The Effects Of Macroeconomic Factors On Credit Quality

The credit quality of Australian and New Zealand structured finance securities has been largely stable for the past 16 years. This stability has been supported by relatively benign economic conditions compared with structured finance securities globally. Outside Australia and New Zealand, tougher economic conditions have resulted in S&P Global Ratings lowering its ratings on a larger number of structured finance transactions, particularly in the years following the 2008 financial crisis.

This article is an update of a study we first published in 2011 and updated in 2014. It explores the links between macroeconomic factors and movements in our ratings on structured finance transactions. Our top five factors--GDP growth, unemployment, home prices, equity returns, and the corporate credit risk premium--historically have been linked with changes in global structured finance credit quality. As in our previous studies, we have looked at historical correlations between the five macroeconomic variables and a measure of ratings migration known as the average change in credit quality.

Overview

- Data between 2000 and 2016 show that unemployment has the highest correlation with changes in average credit quality for Australian and New Zealand structured finance securities.
- Credit deterioration associated with a higher unemployment rate historically has been greater than the credit improvement associated with a lower unemployment rate.
- The correlation between property prices and ratings performance has not been as strong as other macroeconomic variables during the observation period. We expect this observation to be stronger during a period of falling house prices.
- Compared with the ratings volatility of global structured finance securities, the credit quality of Australian and New Zealand ratings has been relatively stable during the past 16 years. During this period, the Australian economy has experienced only mild economic stress.
- Our base-case scenario for 2017 is that our ratings will remain relatively stable.

Scope And Focus

We have chosen to focus on the links between certain macroeconomic factors and the rating migration of structured finance securities collateralized by Australian and New Zealand domiciled assets. Although many factors combine to determine our structured finance credit ratings, we have identified five macroeconomic factors that we believe are the most relevant and historically correlated with changes in credit quality on global structured finance securities. The five factors are GDP growth, property prices, unemployment rates, equity prices, and corporate credit risk premiums.

Transaction-specific factors such as the quality of servicers or counterparty risks affect credit performance, but we have focused our analysis on general macroeconomic factors. We have chosen to look at asset-backed securities (ABS), commercial mortgage-backed securities (CMBS), and residential mortgage-backed securities (RMBS). RMBS represent about 90% of our total ratings outstanding. We have not included synthetic collateralized debt obligations (SCDOs) in our analysis because the underlying reference entities are domiciled outside Australia and New Zealand, and their performance is not affected by Australian macroeconomic factors. We have provided performance trends, including SCDOs, in Appendix I for the sake of completeness.

We have assessed correlation coefficients between credit performance and the top five macroeconomic factors (see table 1), as well as among macroeconomic factors (see table 2), to observe the impact of these factors between 2000 and 2016, to the extent that data are available. All of these macroeconomic factors tend to be parallel indicators during the observation period.

Table 1

Correlation Coefficients Between Economic Variables and Australian/New Zealand Structured Finance Ratings (Excluding CDOs) (2000-December 2016)						
	ALL	Investment grade	Noninvestment grade	Asset-backed securities	Commercial mortgage-backed securities	Residential mortgage-backed securities
Change in House Price Index	0.22	0.25	0.04	(0.02)	0.41	0.18
Change in unemployment rate (%)	(0.62)	(0.63)	(0.43)	(0.24)	(0.15)	(0.34)
Nominal GDP (% change)	0.16	0.18	0.11	(0.03)	(0.14)	0.09
S&P/ASX 100 (% change)	0.54	0.58	0.21	0.14	0.27	0.62
U.S. 'BBB'-'AAA' yield differential	(0.58)	(0.56)	(0.51)	(0.35)	(0.22)	(0.34)

Table 2

Correlation Coefficients Among Economic Variables (2000-December 2016)					
	Change in House Price Index	Change in unemployment rate (%)	Nominal GDP (% change)	ASX 100 (% change)	U.S. 'BBB'-'AAA' yield differential
Change in House Price Index	1.00				
Change in unemployment rate (%)	(0.35)	1.00			
Nominal GDP (% change)	0.20	(0.11)	1.00		
S&P/ASX 100 (% change)	0.21	(0.33)	0.10	1.00	
U.S. 'BBB'-'AAA' yield differential	0.01	0.37	(0.08)	(0.60)	1.00

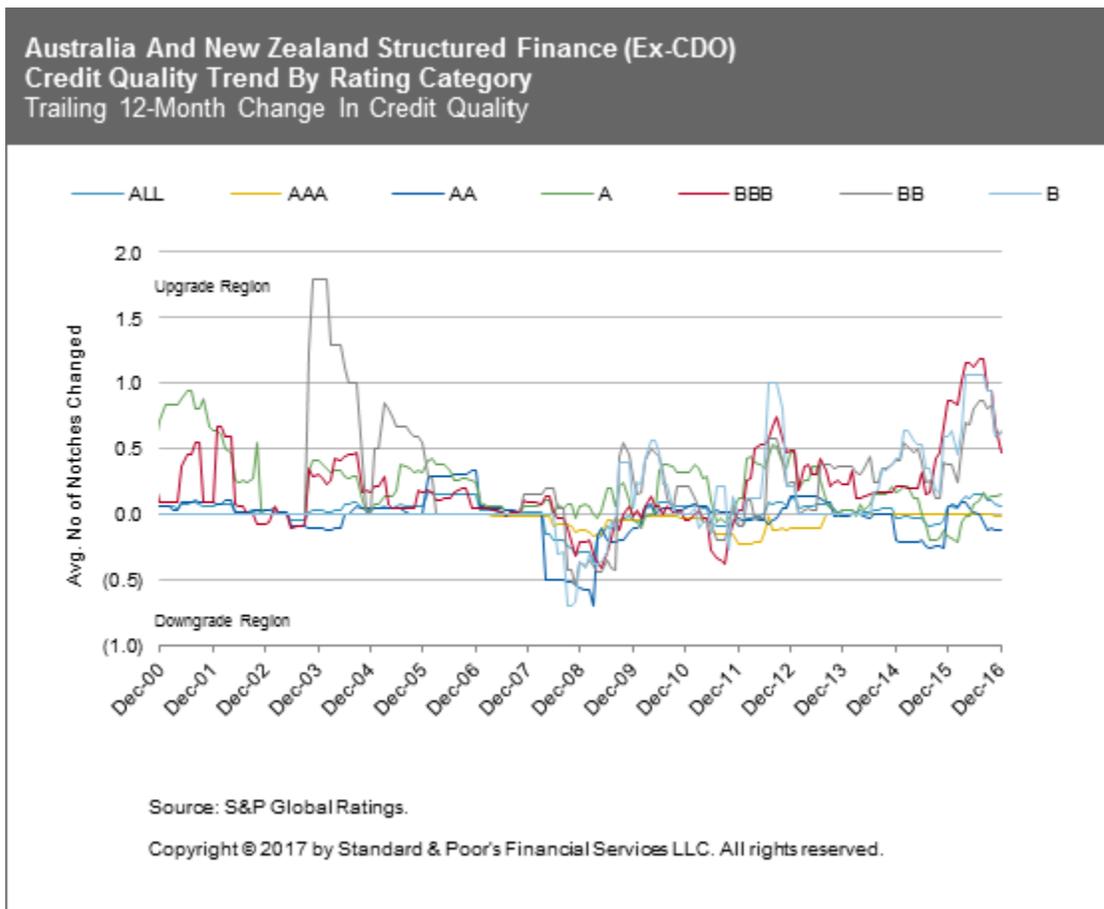
Australia's Credit Quality Trends By Rating And Sector

Macroeconomic factors have varying effects on the credit quality of Australian and New Zealand structured finance securities. We have reviewed 16 years' worth of data to determine the correlations among economic factors and credit quality. We also have studied changes in the credit quality of structured finance securities in Australia and New Zealand on a trailing 12-month basis between January 2000 and December 2016.

We analyzed global structured finance ratings and macroeconomic data between January 2000 and December 2016, calculating the 12-month trailing average change in credit quality (ACCQ) by asset class and rating category. For the purpose of this study, we define the ACCQ as the average number of rating notches by which ratings change during a 12-month period, taking the average of all ratings, including those that remained stable and therefore underwent a change in credit quality of zero notches. Raised ratings generally make this measure more positive, while lowered ratings make it more negative.

Overall, Australian and New Zealand structured finance securities experienced moderate changes in ratings during this time, with more volatility in the speculative ratings than in investment-grade ratings (chart 1). Compared with the ratings volatility of global structured finance securities, Australia's ratings have been relatively stable.

Chart 1

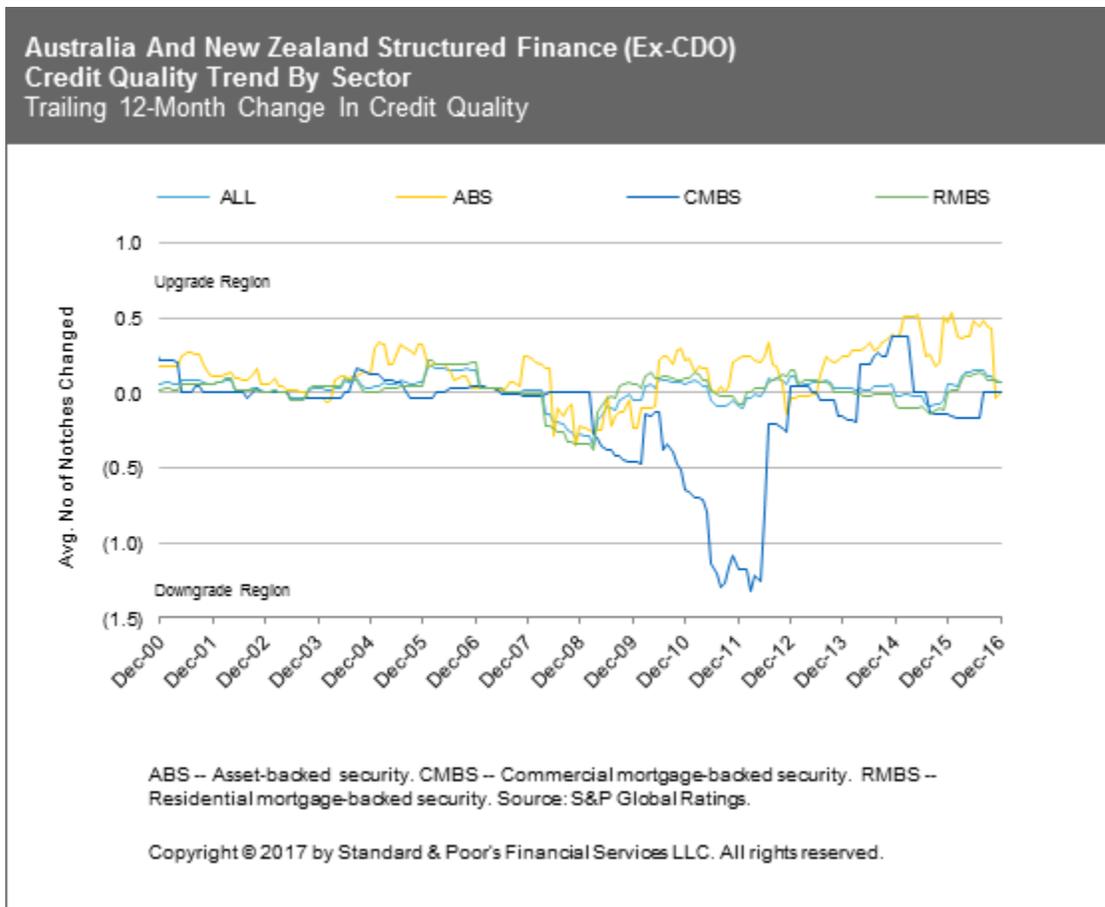


The average rating performance was predominantly stable among all Australian and New Zealand structured finance securities before April 2008, with a bias toward raised ratings. During the past 16 years, Australian structured finance securities recorded the largest decline (albeit small) in average credit quality between 2008 and 2009 (see chart 1). Securities rated 'AAA' remained relatively stable during 2008 to 2009, when the trailing 12-month average decline in credit quality was about 0.1 notch. The decline globally was three notches in both years.

Ratings were marginally less stable during this period for securities rated 'AA' and below, particularly in the speculative rating categories, which saw a maximum 12-month trailing average decline of 0.7 notch in the 'B' rating category. The decline in overall credit quality observed during this period was predominantly due to changes in the counterparty criteria and the downgrades of some financial institutions that provide support to transactions.

The average decline in credit quality after March 2010 was more pronounced for Australian CMBS than other Australian structured finance securities (chart 2). This divergence from other Australian asset classes was not driven by deterioration in the underlying collateral performance; it was driven by the refinancing risks inherent in CMBS due to the bullet repayment features of the notes. This refinancing risk becomes more exaggerated in weakened financial market conditions, which place pressure on the ratings of Australian CMBS.

Chart 2



RMBS ratings declined by an average of 0.3 notch between March 2008 and March 2009. This was the largest decline during the period we observed. Some of the lowered ratings were driven by deterioration in the performance of the underlying collateral, particularly in the nonconforming RMBS sector, due to the slowdown in economic activity and the more difficult refinancing conditions for borrowers in this cohort. However, the majority of the lowered ratings were on the subordinated notes in prime RMBS transactions, driven by the lowering of the financial strength rating (FSR) of QBE Lenders' Mortgage Insurance Ltd. (QBE; formerly known as PMI Mortgage Insurance Ltd.) by one notch in April 2008 to 'AA-'. This period coincided with a time of adverse global economic conditions.

Lenders' mortgage insurance (LMI) is a key source of credit enhancement for Australian prime RMBS ratings and creates a cap on the ratings of many subordinated RMBS notes. For this reason, the lowering of the rating on QBE impacted many other ratings because it is one of the major LMI providers in this market. The rating performance of Australian RMBS has improved to stable since 2009, with some positive bias.

Asset-backed securities have experienced generally stable to positive ratings performance during the period between 2000 and December 2016. The build up of credit support as a percentage of outstanding balance due to the rapid repayment from the underlying collateral and the largely sequential-pay structures has supported the strong ratings performance in this sector.

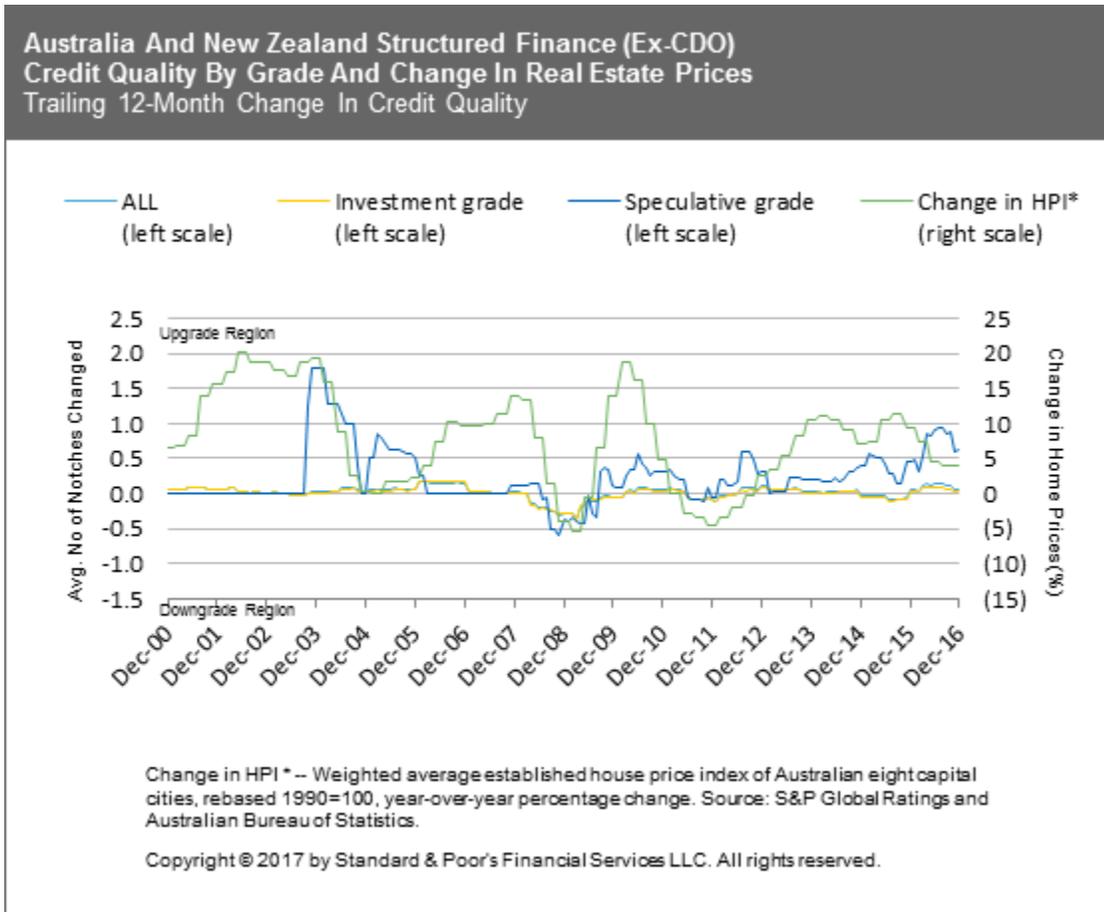
The Effect Of The Top Five Macroeconomic Factors On Credit Stability

There is a strong correlation between the unemployment rate and our ratings on Australian and New Zealand structured finance transactions (table 1). This is as we would expect because loss of income is a key cause of mortgage default. Changes in property prices and the unemployment rate are more likely to have a direct, though delayed, effect on collateral performance because it takes time for these changes to work their way through the broader economy.

We also found a strong correlation between changes in equity prices and corporate risk premiums than for other macroeconomic variables during the period we analyzed (table 1). The performance and financial strength of corporates and financial institutions that act as counterparties in many transaction structures are likely to reflect equity price movements and corporate credit risk premiums. The decline in credit quality that occurred between April 2008 and February 2010 was partially due to the downgrades of some financial institutions that provide support to transaction structures. During this period, the ASX 100 recorded some large declines, and the yield differential widened between 'AAA' and 'BBB' spreads.

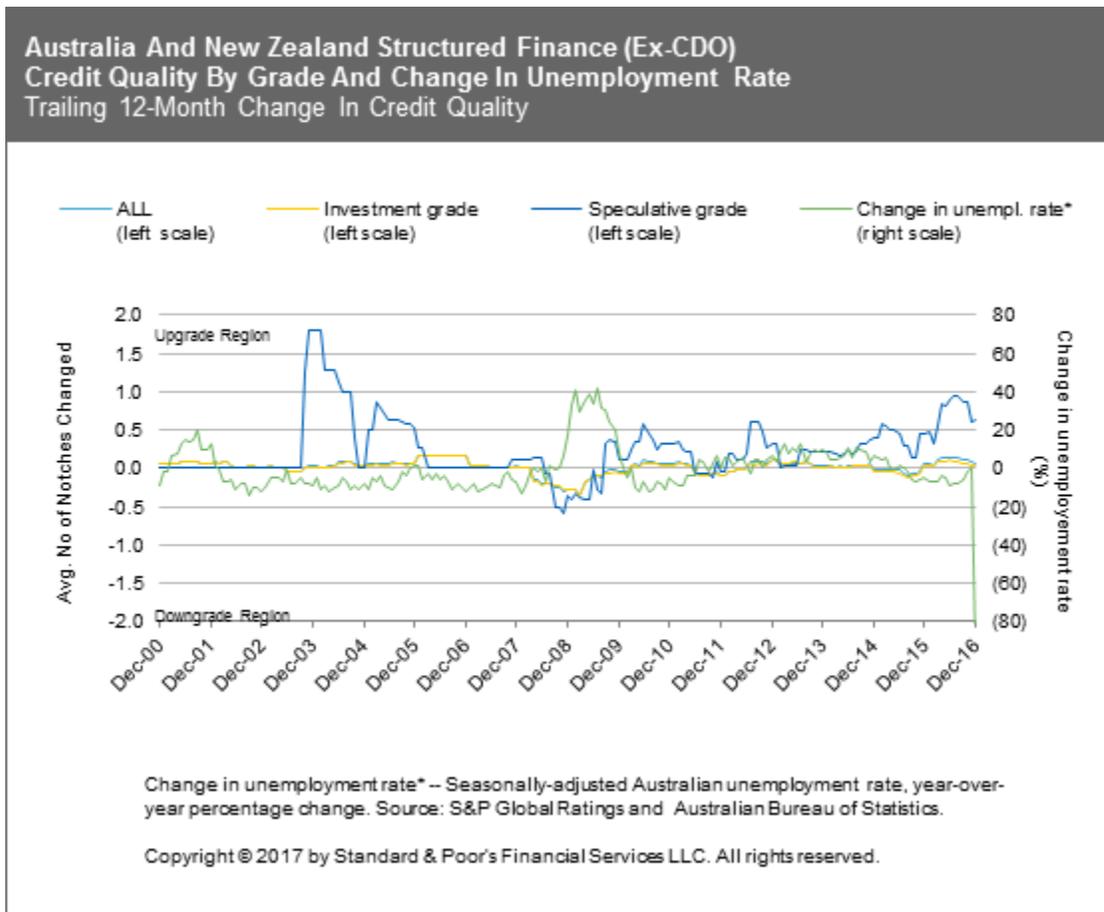
Charts 3 to 7 show the correlation during the past 16 years between Australian and New Zealand structured finance securities and the top five macroeconomic variables.

Chart 3



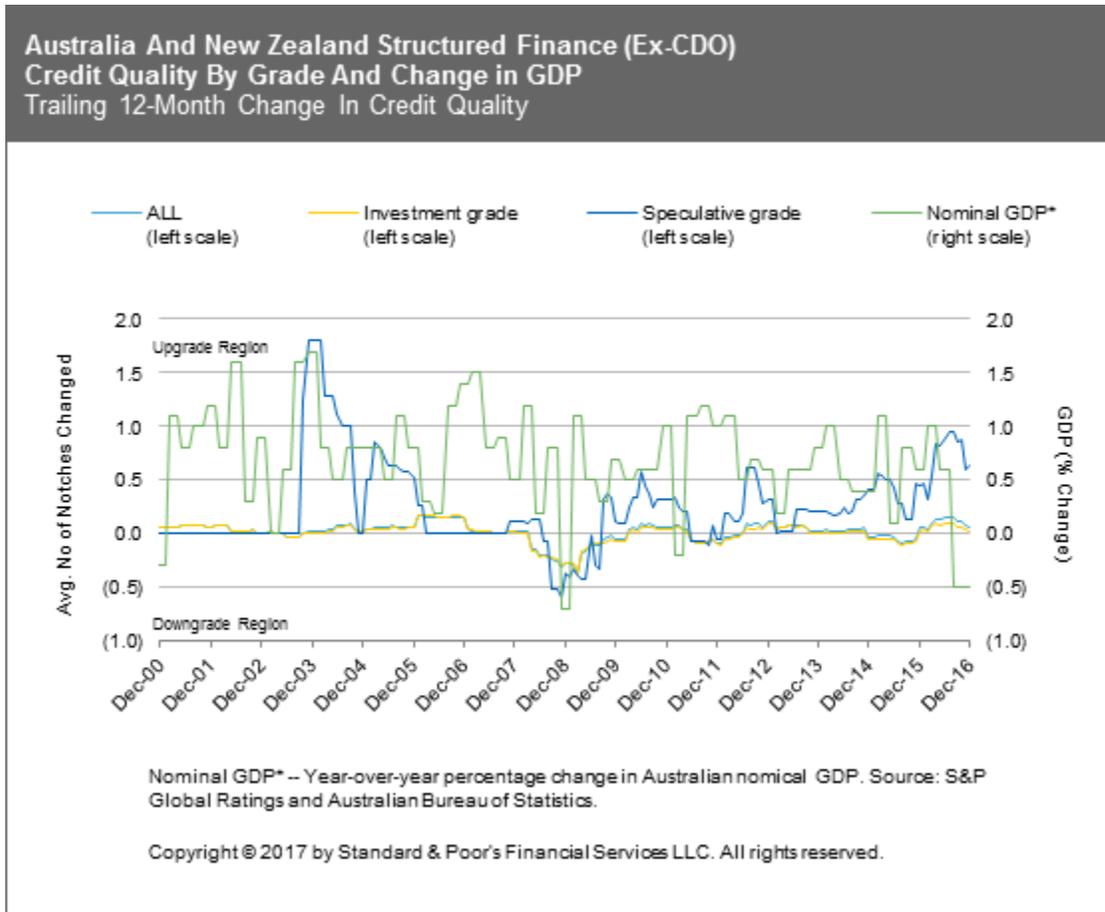
The correlation between property prices and ratings is not as high as other macroeconomic variables during the observation period, but we expect the correlation to be stronger during a period of falling house prices. Strong property price growth in recent years has not been a key driver of rating actions because most of our ratings outstanding are 'AAA (sf)'.

Chart 4



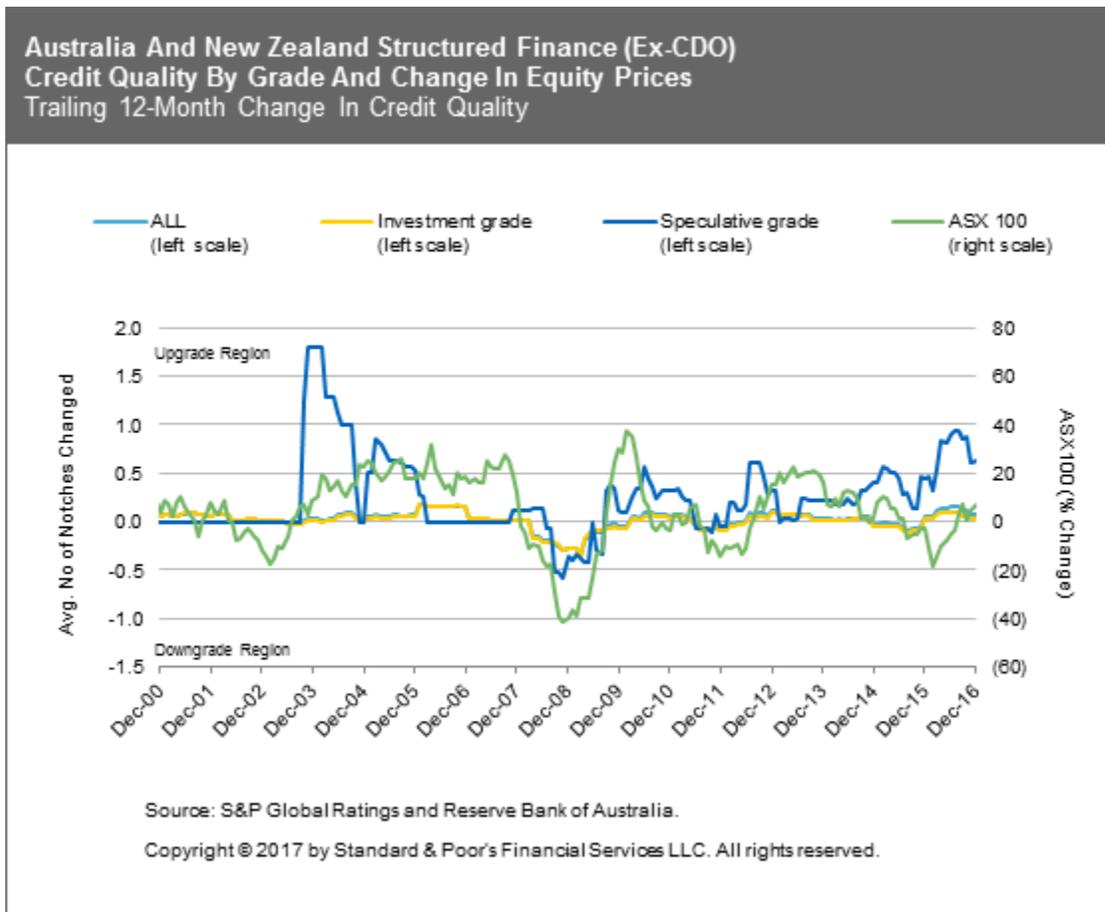
Australia's unemployment rate has remained stable and relatively low during the past 16 years. Our ratings on Australian and New Zealand structured finance transactions are negatively correlated to a change in the unemployment rate (chart 4). Unemployment-rate changes have a strong link to consumers' ability to repay their debts and, therefore, to the collateral credit quality of some structured finance transactions and the creditworthiness of the securities. We note that the correlation is stronger during downturns than in upturns. In other words, the credit deterioration associated with a higher unemployment rate historically has been greater than the credit improvement associated with a lower unemployment rate.

Chart 5



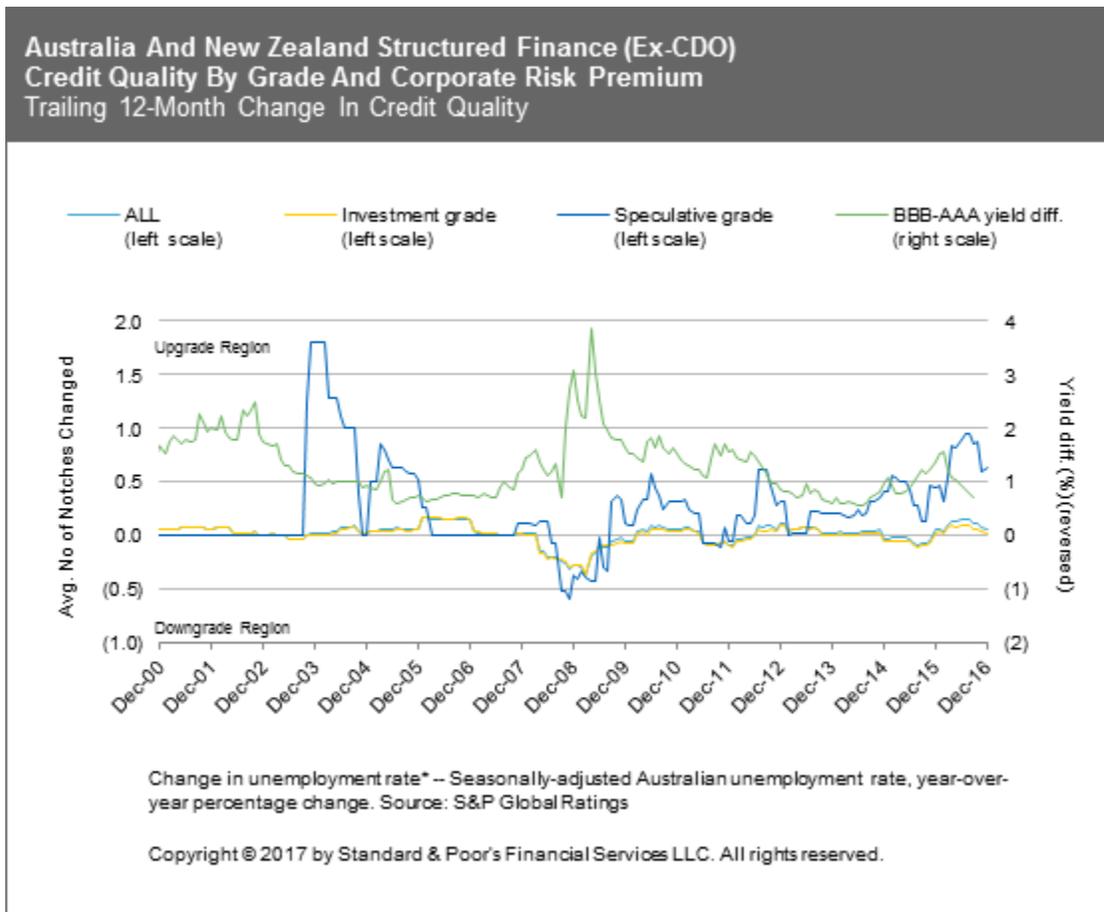
Annual changes in Australia's quarterly GDP are positively correlated with the credit quality and our rating actions on Australian structured finance securities (chart 5). Consistent with our observations globally, GDP growth rates are positively correlated with credit quality because the general health of an economy affects and influences households and corporates' debt repayment capacity.

Chart 6



Australian equity prices, as measured by the S&P/ASX 100 index, have exhibited a strong correlation to the performance of Australian structured finance securities (chart 6). In our global structured finance study, equity price growth has been a leading indicator of credit quality in global structured finance (see "Global Structured Finance Scenario And Sensitivity Analysis 2016: The Effects Of The Top Five Macroeconomic Factors," Dec. 16, 2016).

Chart 7



The credit quality of Australian structured finance securities is negatively correlated to corporate credit risk premiums (chart 7). The spike in credit risk premiums during late 2008 and early 2009 highlights investors' preference for riskless credit risk based on credit risk premiums.

We have used U.S. credit risk premiums data--as measured by yield differences between corporate 'BBB' and 'AAA' ratings--as a benchmark because of their depth and availability.

Australian and New Zealand structured finance securities have not been tested by a severe economic downturn during which all of these macroeconomic factors significantly deteriorate, such as occurred during the Great Depression. Under a Great Depression 'AAA' stress scenario, we would expect the correlation among structured finance securities, property prices, and the unemployment rate to be much stronger than what we have observed in a more benign economic environment.

Sensitivity And Scenario Analyses Provide Insight On Future Credit Quality

After identifying our top five macroeconomic factors, we quantified the links between them and structured finance rating transitions during benign and stressed periods.

Our best-case scenario resembles the economic environment between 2005 and 2006, when we raised our ratings on the Australian structured finance sector by an average of 0.2 notch and unemployment declined to 4.5% (table 3). Average rating increases also were higher between June 2005 and June 2007.

Our downturn scenario reflects the economic conditions between March 2008 and March 2009, when Australian house prices fell 5.5% (table 3). Although we have defined the period between March 2008 and March 2009 as an economic downturn, it represents a period of slowing, rather than declining, GDP growth. Therefore, we believe the growth deceleration only indirectly affected our ratings through changes to the unemployment rate and disposable income.

Table 3

Australia and NZ (SF) (ex-CDO) Credit's Recent Trends Vs. The Great Depression For Each Top Five Economic Factor	
Upgrade trends (January 2005 - December 2006)	
Australia GDP	Cumulative increase of 6.3% between 2005 and June 2006
Australia unemp. Rate	Declined from 5.1% to 4.5% between 2005 and 2006
Australia HPI	House prices jumped 12.2% between 2005 and 2006
ASX 100	Equity prices jumped 37% between 2005 and 2006
U.S. Corp. spread diff ('AAA' to BBB')	U.S. spreads decreased from 91 bps to 76 bps during 2005-2006
Aust/NZ SF (ex-CDO) credit quality	Increased 0.18 notches between 2005-2006
Aust/NZ SF (ex-CDO) 'AAA' credit quality	High stability
Downturn trends (March 2008 - March 2009)	
Australia GDP	Cumulative increase of 1.4% between March 2008-March 2009
Australia unemp. Rate	Increased from 4.0% to 5.7% between March 2008-March 2009
Australia HPI	House pieces declined 5.5% between March 2008-March 2009
ASX 100	Equity prices declined 32% between March 2008-March 2009
U.S. Corp. spread diff ('AAA' to BBB')	U.S. spreads increased to 219bp from 161 bps during March 2008-March 2009
Aust/NZ SF (ex-CDO) credit quality	Declined 0.38 notches between March 2008-March 2009
Aust/NZ SF (ex-CDO) 'AAA' credit quality	Declined 0.15 notches between March 2008-March 2009
The Great Depression 'AAA' stress scenario (U.S. data in 1929-1935)	
Australia GDP	U.S. GDP declined by 26.5% from 1929 through 1933
Australia unemp. rate	U.S. unemp. rate peaked at 24.9% in 1933 through 1935
Australia HPI	U.S. home prices declined and home building dropped by 80% from 1929 through 1932
ASX 100	U.S. stock market dropped by 85% from September 1929 to July 1932
U.S. Corp. spread diff ('AAA' to BBB')	Financial system suffered major dislocations

Based on historical data, we have approximated the change in credit quality if any of the economic variables were to change by a set amount (table 4).

As well as our analysis of the sensitivity of our ratings on Australian and New Zealand structured finance transactions to the top five macroeconomic factors, we conducted best-, worst-, and expected-case scenario analyses following a similar approach to that used in the global study. We found that when applying a linear relationship, the performance during a benign period offers little insight into the possible performance during a severe downturn (table 4).

Table 4

Australia And New Zealand (Excluding CDOs) Scenario And Sensitivity Analysis		
Sensitivity Analysis (Based on March 2008-March 2009 Experience)		Avg. notch drop
Top Five Economic Variables	Change	All
Australia GDP	Each 1% Decline in GDP	n.a
Australia unemp. rate	Each 1% Increase in Unemp. Rate	- 0.0
Australia House Prices Index	Each 10% Decline in House Prices	- 0.7
ASX 100	Each 10% Decline in Equity Prices	- 0.1
US Corp. yield diff. ('BBB'-'AAA')	Each 100 bps Increase in Corp. Spread	-0.2
Worst-case Scenario (Based on The Great Depression in the US)		Avg. notch drop
Top Five Economic Variables	Change	All
Australia GDP	Cumulative 26.5% GDP Decline	n/a
Australia unemp. rate	Jumps from Current 5.7% to 25%	- 4.0
Australia House Prices Index	Assumed 50% decline in house prices	- 3.3
ASX 100	85% decline in equity prices	- 1.0
US Corp. yield diff. ('BBB'-'AAA')	Assumed increase to 10% yield diff.	- 2.3
Optimistic scenario (based on 2005-2006 Experience)		Avg notch up
Top Five Economic Variables	Change	All
Australia GDP	Cumulative 6.3% GDP Increase	0.2
Australia unemp. rate	Unemp. Rate declines from 5.1% to 4.5%	0.2
Australia House Prices Index	House prices increase by 12.6%	0.2
ASX 100	Equity prices increase 37%	0.2
US Corp. yield diff. ('BBB'-'AAA')	U.S. spreads decreased from 91 bps to 76 bps	0.3
Expected case scenario (based on 2017 economic forecast)		Avg notch change
Top Five Economic Variables	Change	All
Australia GDP	Cumulative 3.0% GDP Increase	0.1
Australia unemp. rate	Unemp. Rate remains stable at 5.5%	-
Australia House Prices Index	House prices increase 5%	0.2
ASX 100	Equity prices increase 5%	0.0
US Corp. yield diff. ('BBB'-'AAA')	Spreads remain unchanged	-

Note: As GDP in fact increased during the defined downturn period.

RMBS are the largest asset class in this region, and we believe the credit quality of Australian and New Zealand structured finance securities would be more affected by movements in house prices and the unemployment rate, based on the linear relationship recorded during a period of concentrated rating migrations (table 4). Equity prices and corporate bond spreads are secondary factors that are less likely to affect ratings under more benign economic conditions, in our opinion. However, the effect of other variables could become more pronounced during a severe downturn due to the effect on refinance conditions and the potential erosion of household wealth.

Identifying Other Transaction-Specific Factors

The top five macroeconomic factors are not the only variables that can affect collateral performance and the credit quality of structured securities. Other key assumptions are likely to be transaction specific, such as the quality of servicers or counterparty risks. While we have focused on systemic macroeconomic factors, various transaction-specific and regional factors are also important in explaining credit quality and rating trends. These factors include:

- Financial institutions, including banks, that act as counterparties in the structured finance transactions could influence some transactions' ratings. If the financial institutions default suddenly, without first designating a replacement, this could have a significant effect on credit quality and, in some cases, a somewhat widespread effect on structured finance transactions.
- Liquidity effects generally are not an issue for typical structured finance transactions because they usually are self-amortizing and therefore generally do not need to roll their funding. However, a lack of credit availability and refinancing needs could negatively affect certain transactions.
- The quality of servicers and backup servicers could have an effect on collateral performance and credit quality in the structured finance transactions.
- The legal and regulatory environment, the market and transaction structures, and payment mechanisms that may be regional or asset class specific also can result in differences in credit quality and rating stability.

Stable Economic Outlook Supports Ratings Stability

Economic conditions remain relatively stable in Australia. S&P Global Ratings forecasts unemployment in 2017 to remain below 6%, which will support the solid performance of collateral underlying Australian structured finance transactions. While lower wage growth and higher household indebtedness make certain borrowers more vulnerable to a rise in interest rates and property price declines, a prolonged period of low interest rates has enabled most borrowers to pay down their mortgages and build up a reasonable level of equity in their home loans. This is evidenced by the modest loan-to-value ratios of most Australian RMBS portfolios and relatively high prepayment rates. We believe these factors will support the stable performance of our ratings during the coming years. Rating-transition risks are likely to stem from counterparty rating transitions in the short term.

Appendix I

Chart 8

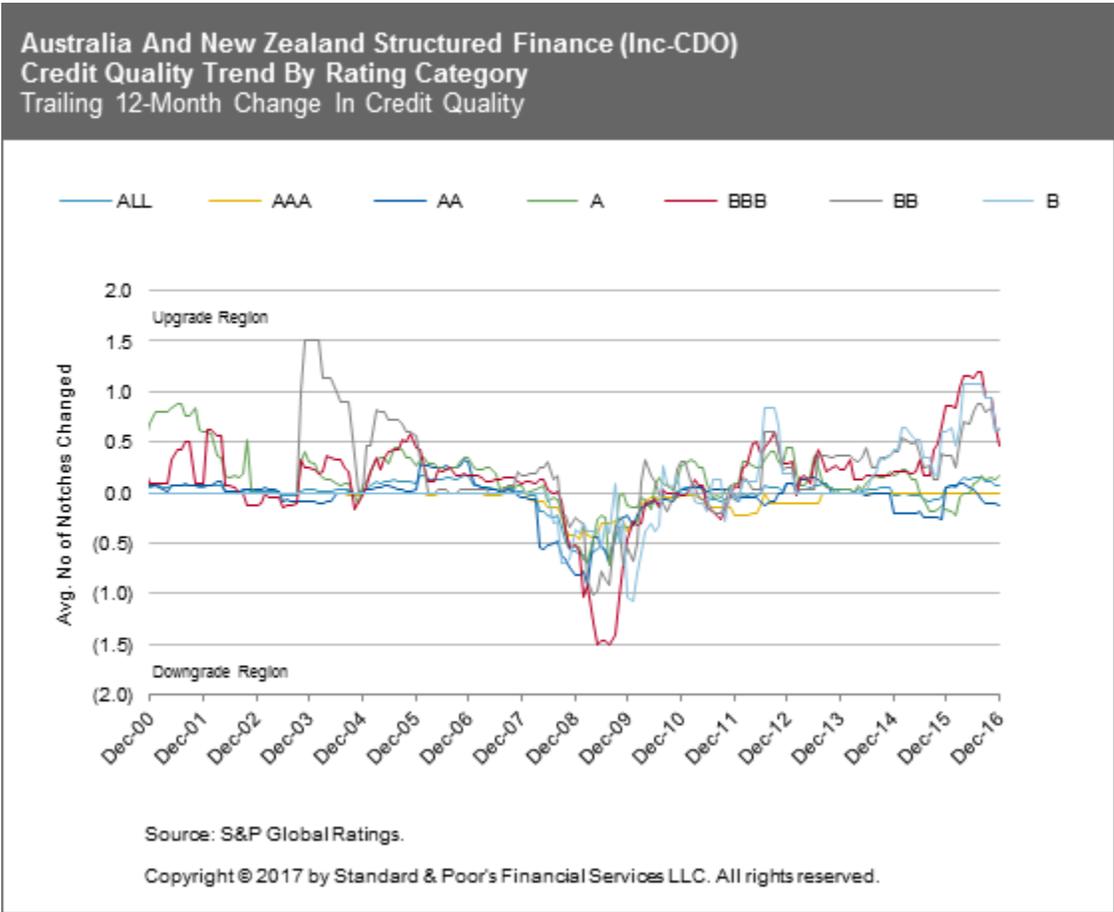
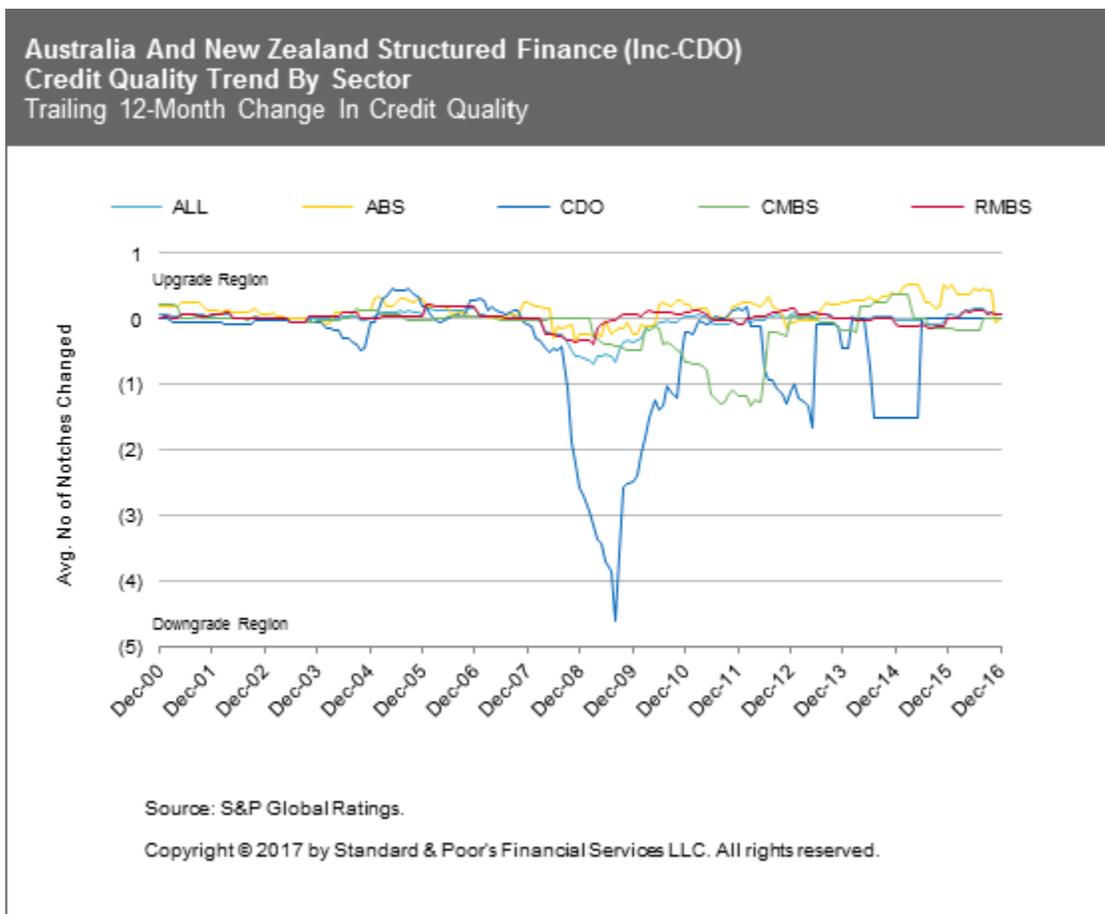


Chart 9



Related Criteria And Research

Related Research

- APAC Economic Snapshots: Rosy Start To 2017--What Can Go Wrong? March 2017
- Global Structured Finance Scenario And Sensitivity Analysis 2016: The Effects Of The Top Five Macroeconomic Factors, Dec. 16, 2016

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