MOODY'S INVESTORS SERVICE

SECTOR IN-DEPTH
16 July 2018

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Moody's Financial Monitor

Current conditions mask risks that will crystallize when the cycle turns

Moody's Financial Monitor provides our views on developments in financial markets and global banking systems, assessing systemic risks and potential asset bubbles, excessive leverage, market volatility and the strength and evolution of bank fundamentals.

Summary

» **Market volatility returns as global trade tensions rise**. Global equity prices have rebounded from the turmoil in the spring but show signs of being weighed down by news on trade. Government bond prices have declined from high levels amid expectations of higher interest rates in the US and in other economies. Global housing prices are close to GDP-based averages, although pockets of risk remain.

» **Economic policy uncertainty remains and geopolitical risk is elevated, but global financial risks are still moderate**. Restored US sanctions on Iran and heightened trade tensions led to uncertainty in the first half of 2018. Systemic financial risks have increased, reflecting reduced liquidity in the US. The continued easing in credit standards suggests investor risk appetite remains strong, but credit spreads are likely to widen significantly if risks crystallize.

» **Weak creditworthiness indicates higher defaults for non-financial corporates in the next downturn**. Our latest corporate rating distributions indicate that the proportion of high-yield issuers is around 66% in the US, 57% in EMEA and 33% in Asia Pacific, up from 60%, 38% and 19%, respectively, in 2008. Credit spreads are likely to widen significantly in severe market stress. During a severe credit downturn, around one-quarter of currently rated corporate issuers in the US could default within three years. In addition, weaker covenants could imply higher loss given default.

» **Funding risk could be a key issue for vulnerable banking systems, such as Turkey, Ukraine, Russia and South Africa**. If investors are concerned about threats to the economy's external vulnerability and weaknesses, they may withdraw bank funding. The Turkish banking system is the most exposed to funding shocks.

» **Tightened financial conditions could further strain vulnerable emerging-market currencies and bonds**. While some frontier market sovereigns are among the most vulnerable countries, Argentina and Turkey show the highest risk among emerging markets. To a lesser extent, Hungary, South Africa, Chile and Poland also have external vulnerability with either lower foreign currency reserves or elevated government debt, or both.

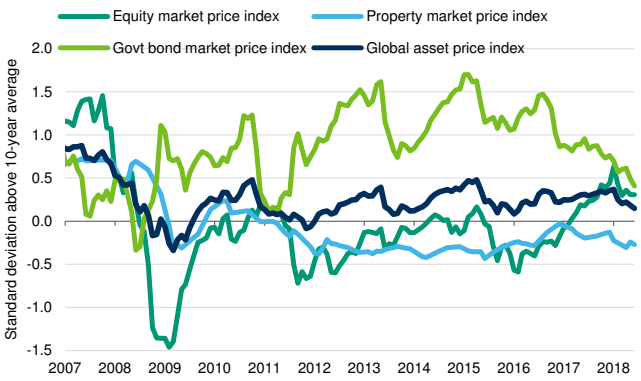
Market volatility returns as global trade tensions rise

Despite the solid economic backdrop, market volatility increased notably at the beginning of 2018 before generally easing since March. Recent trade tensions have generated some volatility in the equity market, notablely in Asia. Our measures of asset prices declined moderately in the first half of 2018 (Exhibit 1). Government bond prices declined from high levels amid market expectations of higher interest rates in the US and other economies; meanwhile, global housing prices relative to GDP are close to 10-year averages.

In February, expectations of higher inflation pushed US Treasury yields higher, which in turn triggered a US equity correction. The sell-off contributed to the decline of exchange-traded products on the VIX index, which move in the opposite direction to the VIX, exacerbating a further surge in equity volatility. The market subsequently stabilised in March.

Exhibit 1

Global performance of asset prices

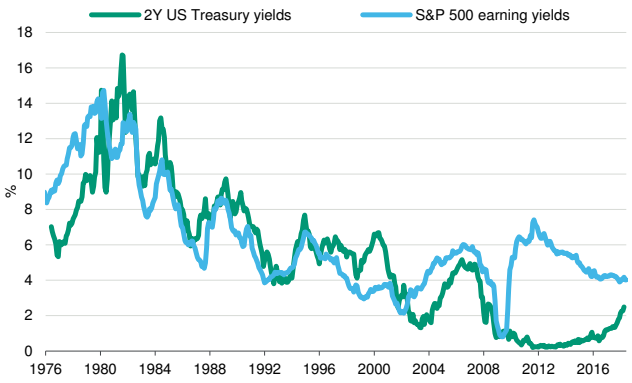


For details, see Exhibit 33 in the appendix.
Source: Moody's Investors Service

Exhibit 2

Gap between US Treasury yields and S&P 500 earnings yields remains but is narrowing

%



Source: Haver Analytics

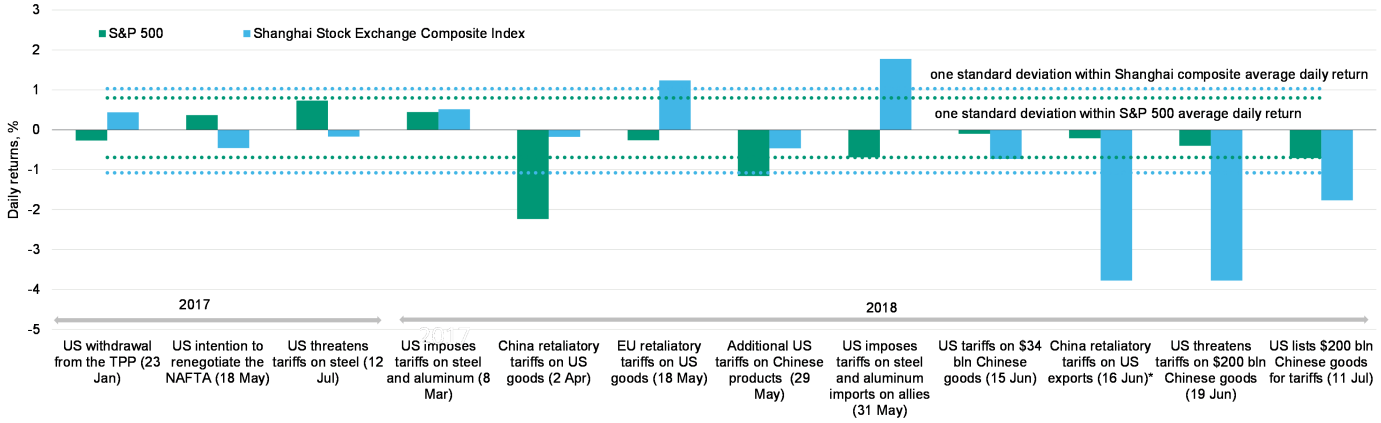
Relatively low interest rates continue to support US equities, as discussed in the previous Financial Monitor. While the gap between benchmark bond yields and the S&P 500 earnings yield has narrowed (Exhibit 2), it remains higher than over the longer term, implying that the equity risk premium may actually be higher than average.[1]

However, renewed concerns about disruptions to global trade have hit equities recently. Declines in US and other equity indices have accompanied the threat and subsequent imposition of US tariffs on a range of countries and exports – and the proportionate and reactive tariffs on US goods from China, the EU and others. In fact, the repeated trade announcements appear to be having a growing impact on the equity market over time, perhaps linked to their increased frequency and severity (Exhibit 3).

Exhibit 3

US trade dispute shows larger impact on market returns in 2018

Daily returns %



Average and standard deviation of daily returns are estimated for the period between 1 January 2016 and 26 June 2018.
*19 June daily return is presented as Chinese stock market was closed on 16-18 June for the weekend and a holiday.
Sources: Haver Analytics, Moody's Investors Service

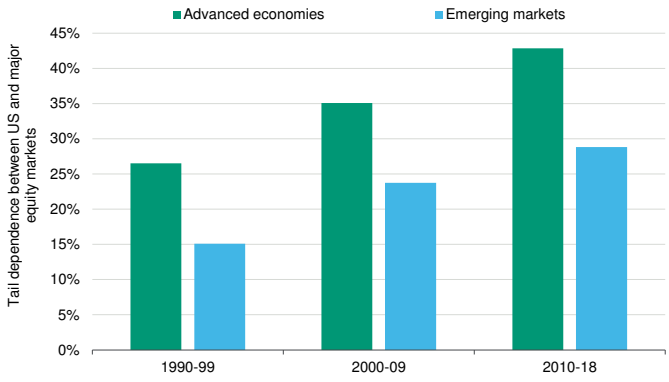
The market reaction suggests that a full-blown trade war could trigger a more substantial downside correction in US equities. These tensions could also spill over to other markets, as illustrated by rising "tail dependence" in global equity markets. We measure tail dependence as the probability of poor (tail) performance in one equity market given the same poor performance in another market. For instance, on days since the 2007-08 financial crisis when the daily return of the US S&P 500 Index has been below the fifth percentile, there has been a one-in-three probability that returns in other major markets will also be below the fifth percentile (Exhibit 4). This probability has nearly doubled since the 1990s.

Increases in tail dependence across equity markets could exacerbate the impact of the next financial downturn. However, overall the level of global financial integration appears similar to pre-crisis levels, according to the International Monetary Fund (Exhibit 5).

Exhibit 4

Tail dependence on US equity has risen over the past several decades

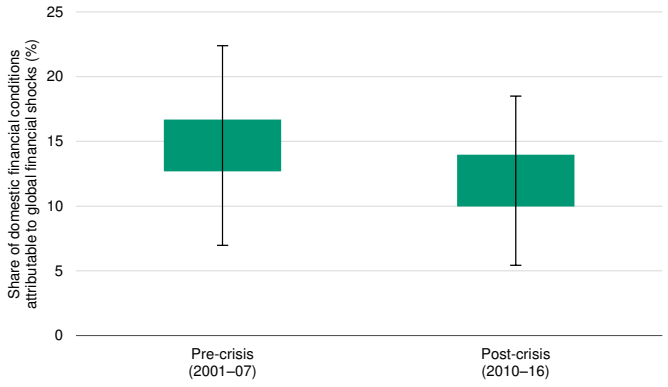
Tail dependence for the lowest 5th percentile



We define tail dependence as the probability that when the daily return of the US market is in the tail, the returns of other markets will also be in the tail.
Source: Moody's Investors Service

Exhibit 5

Global financial integration appears similar to pre-crisis levels



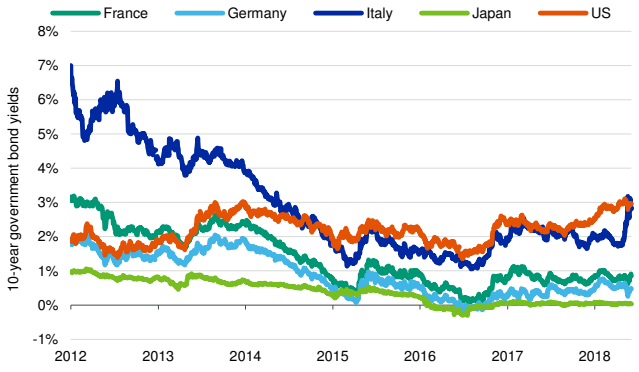
Source: International Monetary Fund

The recent rally in US government bond yields reflects the solid economic recovery and rising US inflation expectations. For now, those higher inflation expectations look consistent with the Federal Reserve's target. In contrast, government yields in the euro area core countries remain compressed as the economic cycle (and monetary policy) lags that in the US. In May, yields of euro area peripheral

country debt, led by Italian government bonds, widened against Bunds following political turmoil in Italy, but yields have declined somewhat as uncertainty has receded (Exhibit 6). Against a backdrop of a stronger US economic environment, rising US interest rates and growing trade tensions, the currencies of a number of emerging market (EM) countries have depreciated by more than 5% since the end of 2017 (Exhibit 7). The Argentine peso and the Turkish lira weakened the most as a result of higher refinancing requirements, elevated near-term inflation prospects and willingness to use fiscal policy options constrained by higher government debt and fiscal deficits.

Exhibit 6

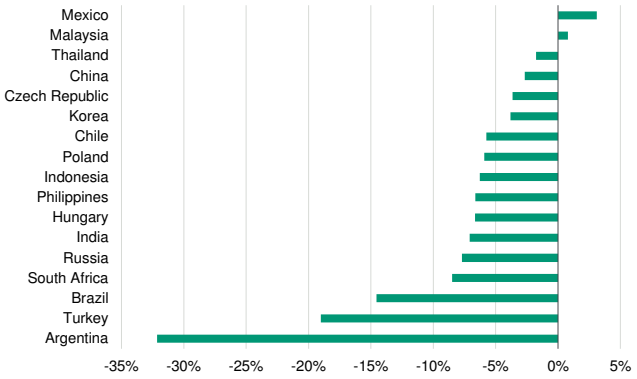
10-year government bond yields diverge in the US and the core euro area countries



Source: Haver Analytics

Exhibit 7

EM currencies have depreciated against the US dollar since the end of 2017



Note: Data as of 12 July 2018.
Source: Haver Analytics

Property prices dipped in most countries during H1 2018. Price levels are generally below 10-year averages (relative to nominal GDP) in most countries. However, house prices remain elevated in a few markets. While we have seen signs of house market stabilisation in Norway, Sweden, New Zealand and Australia, elevated house prices are also reflected in either a high ratio of prices to income or high household debt to income levels (see Exhibit 33 in the Appendix for details).

Household mortgage debt will keep rising several years after house prices peak

In a previous publication on overheating in housing markets, we noted that several countries, including Norway, Belgium and Germany, show signs of stretched house prices.[2] However, developments in other countries, including Canada and Sweden, where house price inflation has exceeded 40% in recent years, have indicated that a deceleration in inflation and a stabilisation of prices need not necessarily trigger a marked outright downturn (Exhibit 8).

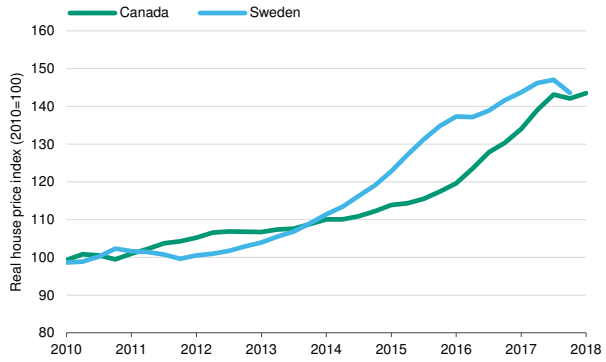
A natural question is how household mortgage debt will react to house price stabilisation. Following a jump in house prices, it is likely that mortgage debt will keep rising for several years even after prices peak or stabilise. This dynamic reflects the normal cycle of housing turnover in which typically only a small share of the market is bought and sold each year. Because of this cycle, we should not expect house prices and mortgage debt to peak at the same time.

To illustrate this dynamic, Exhibit 9 shows results from a simple model of house prices and mortgages.[3] We assume 10% of households move house each year, calibrated to UK data over the past three decades. At that turnover rate, a one-off jump in house prices would be associated with rising average debt burdens for an extended period as outstanding debt incrementally absorbs the price jump.[4] Therefore, the credit risks associated with increased household leverage may continue to build, even as house prices stabilise and inflation abates.

Exhibit 8

Real house price inflation remains elevated in Canada and Sweden

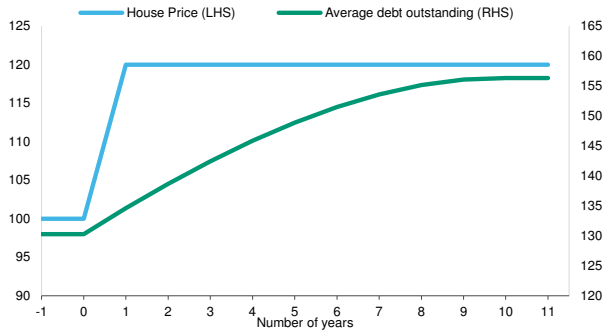
2010=100



Source: Organisation for Economic Co-operation and Development

Exhibit 9

Household mortgage debt keeps rising for several years after house price peaks



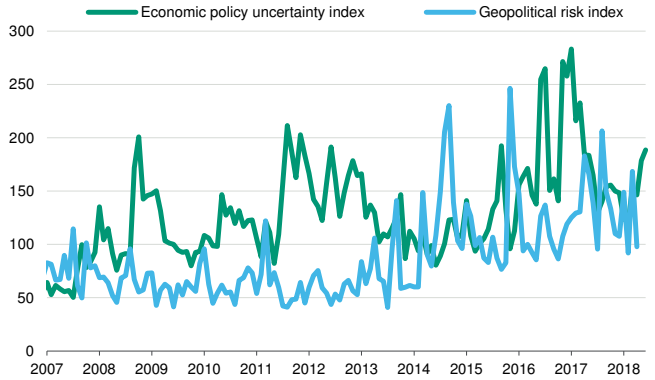
The horizontal axis displays the number of years before and after a jump in house prices. We constructed a simple mortgage repayment model with the following assumptions: LTV = 90% (10% cash down payment), Length of mortgage = 25 years, Interest rate (flat over mortgage) = 5%, Share of households turning over housing in each year = 10%. We modeled house prices to start at 100 for simplicity and undergo a 20% jump in period 1 and remain flat at that level thereafter.
Source: Moody's Investors Service

Economic policy uncertainty remains and geopolitical risk is elevated, but level of financial systemic risk is still moderate

In H1 2018, uncertainly around economic policy and geopolitical risk remained elevated following the restoration of US sanctions on Iran, the imposition of new US (and reciprocal) tariffs amid heightened fears of a trade war and other geopolitical risks (Exhibit 10). But the impact on market conditions was not dramatic. Our assessment is that systemic financial risks increased somewhat in H1, as reflected in reduced liquidity in US equities based on the Amihud measurement, but that the overall risk level remains moderate (Exhibit 11).[5] While US credit spreads remained broadly unchanged, average high-yield credit spreads in the euro area rose 90 basis points from their all-time low. However, euro area spreads remain below their long-term averages.

Exhibit 10

Geopolitical risk and economic policy uncertainty remain elevated



For both indices, long term averages equal 100.
Sources: www.policyuncertainty.com, Moody's Investors Service

Exhibit 11

Systemic risks in global financial markets have picked up slightly

	Risk assessment	Recent development
Asset price risk	MED	→
Credit and market risk	MED	→
Interest rate risk	MED	→
Exchange rate risk	MED	→
Market liquidity risk	MED	↗
Asset price contagion risk	LOW	→

The assessment is based on our subjective assessment, informed by key indicators including asset price indices, corporate credit spreads, equity market implied volatility, yield curve term structure, interest rate swaps, market-implied exchange rate volatility, bid-ask spreads and market liquidity measurement, etc. For details, see Financial conditions remain favourable as growth and banking sectors stabilise.
Source: Moody's Investors Service

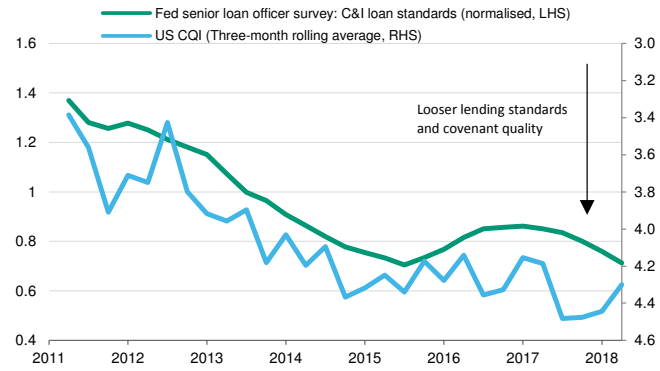
Investor risk appetite remains strong

Despite reduced monetary policy accommodation, investor risk appetite remains strong. Allocation to riskier borrowers by banks and market investors remains high as illustrated by lower credit standards by banks[6] and weak debt covenant quality.

Bank lending standards and debt covenant quality have been weakening consistently in the US since 2011. The US Covenant Quality Indicator (CQI) has improved slightly over the last year but remains within the weakest band (Exhibit 12).[7] In the euro area, while risk appetite in the bond market may have picked up earlier, bank lending standards only started to loosen following the euro area sovereign crisis in 2013 (Exhibit 13). The easing trend in the euro area did not follow monetary policy easing instantaneously because of balance sheet constraints in euro area banks.

Exhibit 12

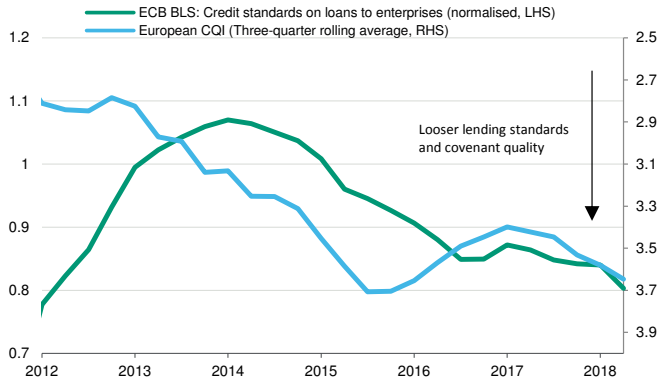
Bank credit standards and bond covenants have been weakening in the US



Bank credit standards are indexed and normalised to create a time series of relative tightening/weakening from the start of the survey. Covenant Quality Indicator (CQI) includes all high-yield bonds, including high-yield lite. A higher score denotes weaker covenant quality on a scale from 1.0 to 5.0. For details, see North American Covenant Quality Indicator: Protection stablizes, even as private equity scores continue to deteriorate.
Sources: Federal Reserve, Moody's Investors Service

Exhibit 13

Euro area bank credit standards remain at ease while bond covenants reverse earlier gains



Bank credit standards are indexed and normalised to create a time series of relative tightening/weakening from the start of the survey. The quarterly CQI score is the average covenant quality score for European high-yield that we publish a covenant quality score for and were priced in that quarter. A higher score denotes weaker covenant quality on a scale from 1.0 to 5.0. For details, see Covenants - Europe: E-CQI erosion continued through 2017,reversing earlier gains.
Sources: European Central Bank, Moody's Investors Service

However, strong risk appetite may not persist, for instance as trade tensions intensify, or monetary tightening becomes more entrenched as lower unemployment in the advanced economies translates into a stronger pickup in wage growth. Whatever the trigger,

a change in the risk appetite of international investors can transmit rapidly across global financial markets as seen during previous crises. At the same time, past reductions in lending standards and covenant quality could result in higher losses for creditors when risks crystallize.

Crystallization of risks will be painful

Gauging when the cycle turns is difficult

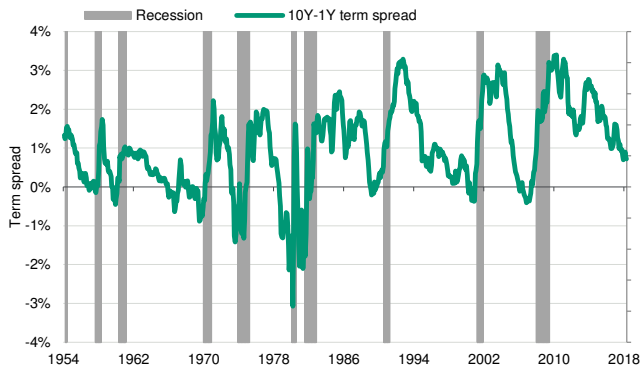
Gauging when a cycle turns is extremely difficult. When the bottom of any economic cycle approaches, the signals can be mixed, with some data pointing to a positive trend, while other indicators continues to fall.

One signal that investors often reference is an inverted yield curve; a narrowing spread between long- and short-term rates may discourage long-term lending to borrowers and slow financing flows to the real economy. At the moment, the term spread (measured as the gap between 10-year and one-year US Treasury yields) is around 50 bps, the narrowest in more than a decade. And while narrowing term spreads are consistent with recent US monetary tightening and longer-term demographic and productivity trends, the prolonged period of growth has raised concerns about the timing of the next downturn.

Since the early 1950s, negative term spreads have generally preceded past downturns (Exhibit 14). Nevertheless, negative spreads – while typically occurring after a prolonged period of economic expansion – do not provide much guide as to when the economy will enter a recession. Although in some cases the US economy has started to contract within 12 months following term spreads turning negative for the first time, at other times the US economy has continued expanding for many more months or even years (Exhibit 15). Therefore, the current low term spread provides little signal as to when the ongoing expansion might end.

Exhibit 14

Narrowing term spreads do not always signal a recession ...

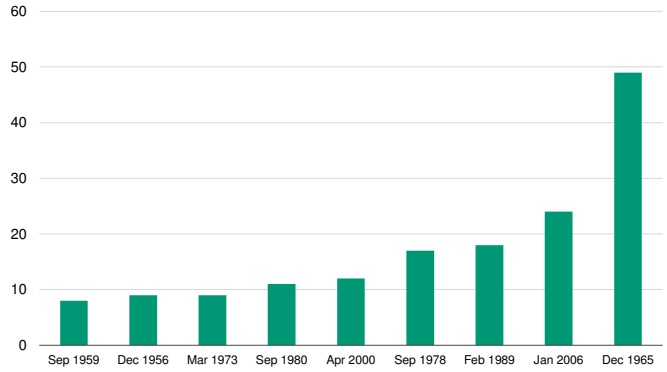


Recession quarters as identified by the National Bureau of Economic Research.
Sources: Haver Analytics, National Bureau of Economic Research

Exhibit 15

... but uncertainty remains as to the timing of any downturn

Months until recession started when term spreads first turned negative



Recession quarters as identified by the National Bureau of Economic Research.
Sources: Haver Analytics, Moody's Investors Service

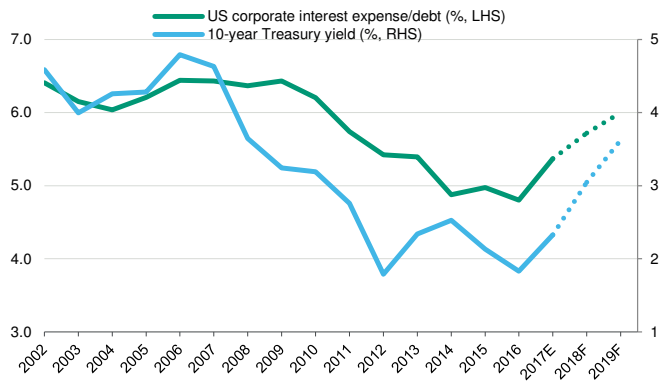
Weak creditworthiness indicates higher defaults for non-financial corporates in the next downturn

Credit spreads are likely to widen significantly during a credit downturn. In times of uncertainty, investors favour safe-haven assets such as Treasury bonds over corporate bonds and they demand a higher risk premium to hold risky assets, which drives up credit spreads. However, changes in effective interest costs of corporates, measured as interest expenses over debt, tend to lag market yields significantly. Between 2007 and 2016, the decline in the average US effective interest rate was around 1.5 percentage points, half of the decline in 10-year Treasury bond yields (Exhibit 16), and the pattern was similar in the euro area (Exhibit 17). Therefore, wider spreads will not immediately affect all corporate borrowers.

Exhibit 16

Corporate effective interest rate is smoother than Treasury yields in the US

%



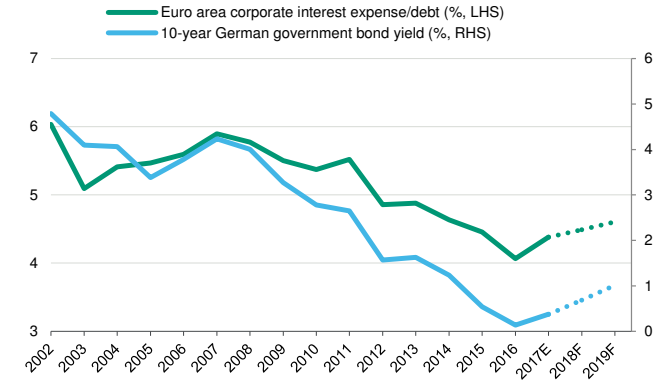
The forecasts were calculated using the historic relationship between US corporate interest expense/debt and the US 10-year Treasury note yield, and the US 10-year Treasury yield forecasts from the Moody's Macroboard.

Sources: Haver Analytics, Moody's Investors Service

Exhibit 17

Corporate effective interest rate is also smoother than government bond yields in the euro area

%



The forecasts were calculated using the historic relationship between euro area corporate interest expense/debt and German 10-year Treasury note yield, and German 10-year Treasury yield forecasts from the Moody's Macroboard.

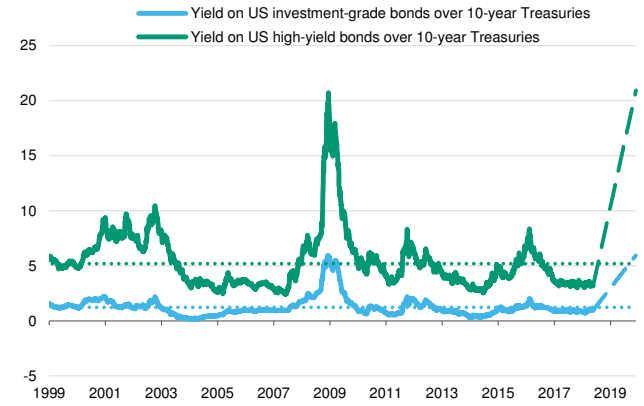
Sources: Haver Analytics, Moody's Investors Service

Since the financial crisis, credit spreads have remained generally contained. While there have been periods with industry-specific stresses, such as in the oil industry, or region-specific stresses, such as the euro area sovereign crisis, non-financial corporates have not been subject to a pervasive and severe global stress. But the current level of spreads will not persist indefinitely. Based on past turns in the cycle, in a stressed scenario spreads could widen to similar levels as in 2009 over a relatively short period. Wider spreads would put market pressure on lower-rated issuers and raise funding costs for those that need to refinance (Exhibits 18-19). If spreads were to widen to around the same level as in 2008, corporate bond yields could reach 25% for high-yield and 9% for investment-grade corporate bonds from the current levels of around 6% and 3%, respectively. While such increases could be relatively short-lived, based on past patterns, they would have a dramatic impact on the secondary market value of investors' current holdings.

Exhibit 18

US corporate bond spreads can widen considerably during a downturn

%



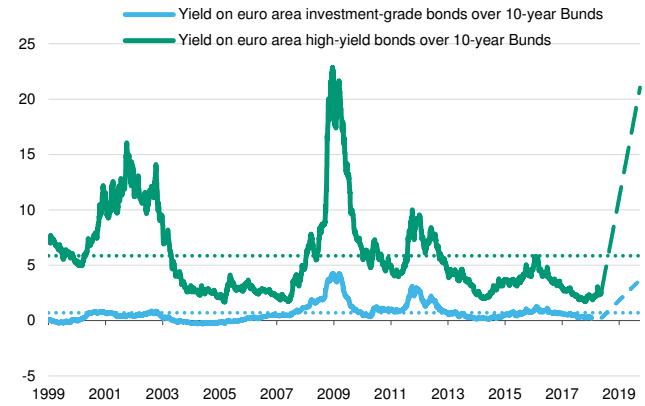
Doted lines indicate the levels of spreads assuming they are to widen to around the same level as in 2008.

Sources: Federal Reserve economic data, Moody's Investors Service

Exhibit 19

European corporate bond spreads can widen considerably during a downturn

%



Doted lines indicate the levels of spreads assuming they are to widen to around the same level as in 2008.

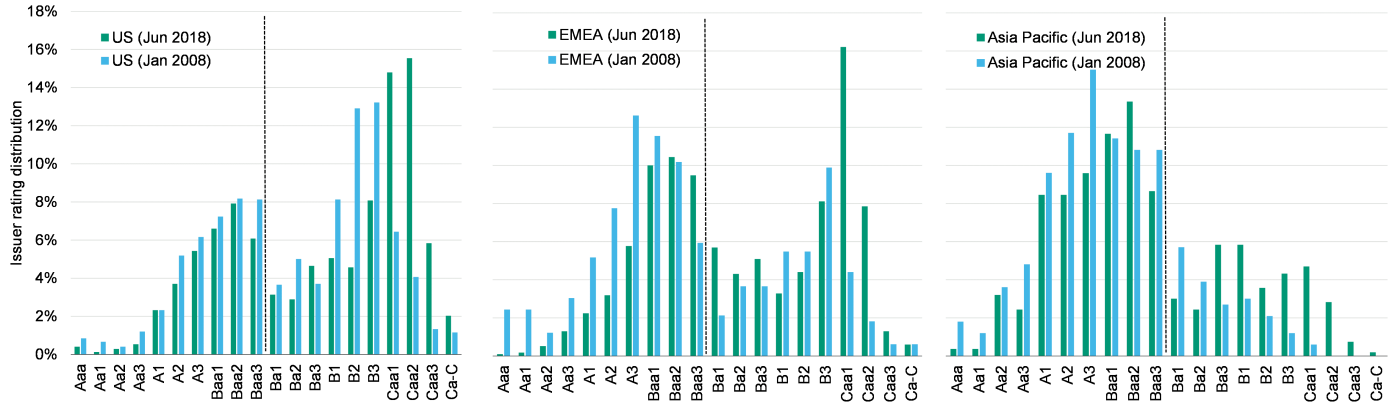
Sources: Haver Analytics, iBoxx, Moody's Investors Service

The next downturn will also be different because rated corporates represent higher credit risks, on average, than before the past downturn: the composition of rated entities has shifted over time. In particular, the extended period of benign credit conditions has provided speculative-grade companies ample opportunity to obtain financing through the capital markets, and these companies now

account for a larger share of the rated universe. Our latest corporate rating distributions indicate that the proportion of high-yield issuers is around 66% in the US, 57% in EMEA and 33% in Asia Pacific (Exhibit 20).

Exhibit 20

Non-investment grade issuers account for around two-thirds of rated corporates in the US and EMEA

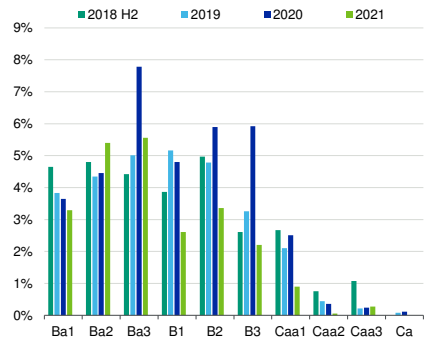


Note: Senior unsecured (or equivalent) ratings for issuers are presented.
Source: Moody's Investors Service

Lower-rated entities tend to account for less overall debt than higher-rated issuers, and therefore near-term refinancing burdens are less skewed to the lower end of the rating distribution. But even so, the share of investment-grade debt has shifted moderately to the Baa category in EMEA.[8] Moreover, one-third of debt maturing by 2021 is non-investment grade in the US (Exhibit 21), followed by 20% in EMEA (Exhibit 22). Maturing US high-yield debt also has a greater concentration in the lower Ba or B categories. These refinancing risks seem less widespread in Asia Pacific, with less than 10% of maturing debt below investment grade (Exhibit 23).

Exhibit 21

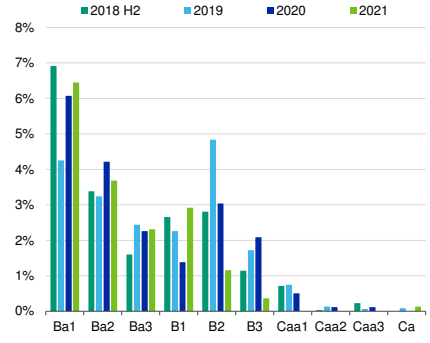
US high-yield maturing debt mostly rated in lower Ba- or B-ranges



Source: Dealogic Analytics

Exhibit 22

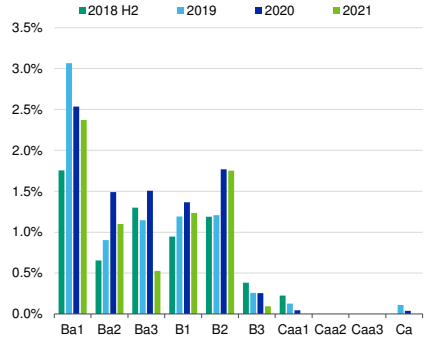
EMEA high-yield maturing debt mostly rated in the higher Ba-ranges



Source: Dealogic Analytics

Exhibit 23

Asia Pacific high-yield maturing debt mostly rated in the higher Ba-ranges

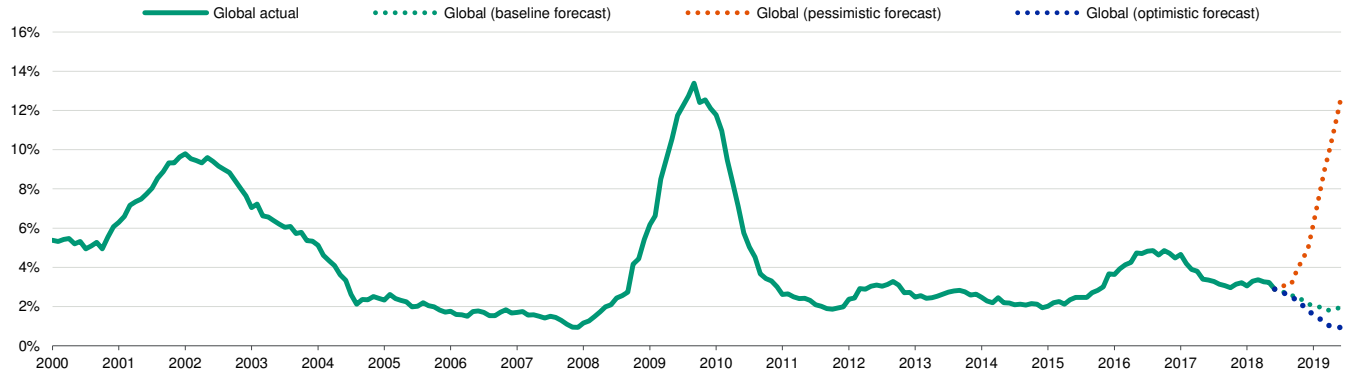


Source: Dealogic Analytics

While the annual default rate for speculative-grade issuers remains low, our current ratings distribution implies a higher number of defaults if bond market liquidity dries up. This is evident in our current default forecasts: in the pessimistic scenario, the speculative-grade default rate jumps 9 percentage points to 12% (Exhibit 24). In addition, a more severe downturn could result in even more pronounced credit distress. Based on empirical three-year cumulative default rates seen from 2008, around one-quarter of currently rated corporate issuers in the US could default over three years in a similar downturn.[9] In addition, weaker covenants could imply higher loss given defaults, which would lead to higher losses.

Exhibit 24

Global speculative-grade default rates could surge to 12% in the pessimistic scenario



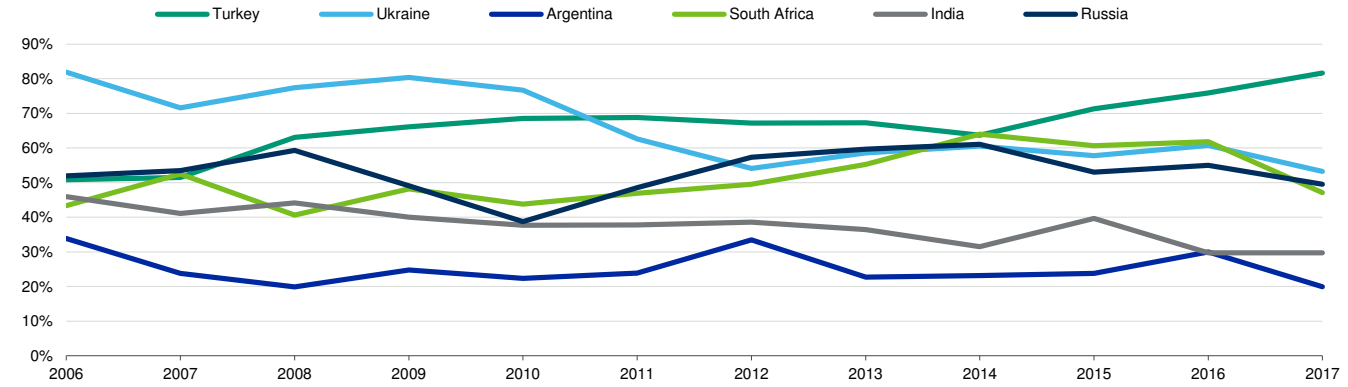
For more details, see Cross Sector: June 2018 Default Report.
Source: Moody's Investors Service

Funding risk could be a key issue for vulnerable banking systems

On the banking side, funding could be a key risk in some markets if investor confidence erodes and funding dries up. The Turkish banking system is the most exposed to funding shocks; Turkish banks continue to rely heavily on capital markets to finance a substantial part of their lending, with the proportion of short-term and interbank lending in market funds continuing to increase. The banking systems of Ukraine, Russia and South Africa also have elevated funding vulnerability, with lending from financial institutions and short-term borrowing accounting for half of the banks' market funding (Exhibit 25).

Exhibit 25

Bank funding vulnerability remains elevated in Turkey, Ukraine, Russia and South Africa
(Lending by financial institutions + short-term borrowings) / Market funds



Source: Moody's Investors Service

Moreover, market funding has became more "binary" in times of stress – likely to be either "on" or "off," rather than simply charging a higher rate to provide funding.[10] This binary behaviour can exacerbate funding risk. In the case of Turkey, if banks saw a similar funding stress to that seen during the Asian crisis in 1997, the net income ratio and capital ratio of the Turkish banking system could fall by 2.4 and 3.9 percentage points, respectively.[11]

In addition, some banking systems still face legacy issues from the financial crisis. Nonperforming loan (NPL) ratios remain elevated in a number of euro area banking systems such as Greece, Cyprus and Italy, and the limited ability of these systems to deal with distressed debt has led to lower NPL resolution. Structural reforms to address these impediments, such as reforms to regulatory and judicial systems, remain slow and halting.

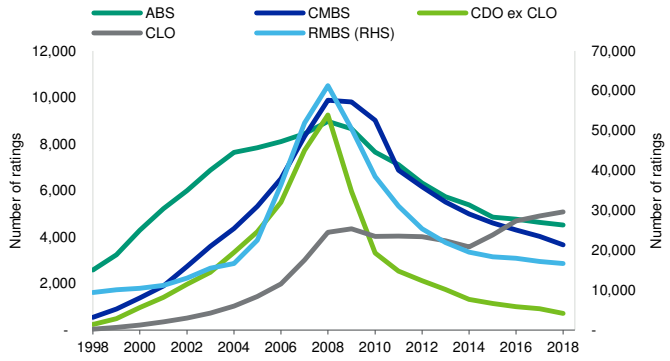
CDO issuance has declined, while commercial real estate-backed securities would be at risk if interest rates rise faster than expected

In the 2007-08 financial crisis, structured finance securities sustained significant losses. Issuance of structured finance products declined and subsequently stabilised in the aftermath of the crisis. Issuance of collateralised debt obligations (CDOs), which are among the most complex structured finance products, has declined, while the issuance of collateralised loan obligations (CLOs) has picked up in recent years because of a strong supply of collateral-leveraged loans and rising demand as investors hunt for yields (Exhibit 26). Nevertheless, the drop in the weighted average recovery rate (WARR), which partially reflects the general credit weakening in leveraged loans, highlights the risk of lower recoveries in the next credit downturn (Exhibit 27).[12]

Exhibit 26

Overall issuance of structured finance products has declined since the financial crisis

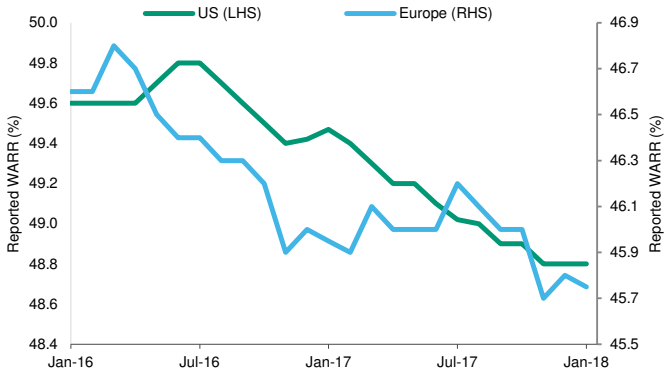
Number of ratings at the start of each year



Source: Moody's Investors Service

Exhibit 27

Reported WARR has declined for European and US CLOs

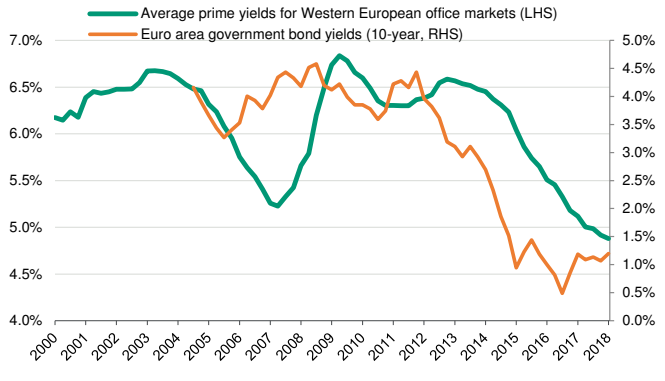


Source: Moody's Investors Service

Another area of concern is commercial mortgage-backed securities, given high commercial real estate valuations in some markets. Property yields have compressed significantly over the past few years because of the low interest rate environment (Exhibit 28). While low benchmark yields support these valuations to some extent, these valuations would be vulnerable in the event of faster-than-expected increases in interest rates and rental yields (Exhibit 29).[13] However, the volatile empirical relationship between government bond yields and property yields indicates that an increase in bond yields would not necessarily lead to an equivalent increase in property yields.

Exhibit 28

Prime property yields for Western European office markets declined along with benchmark bond yields

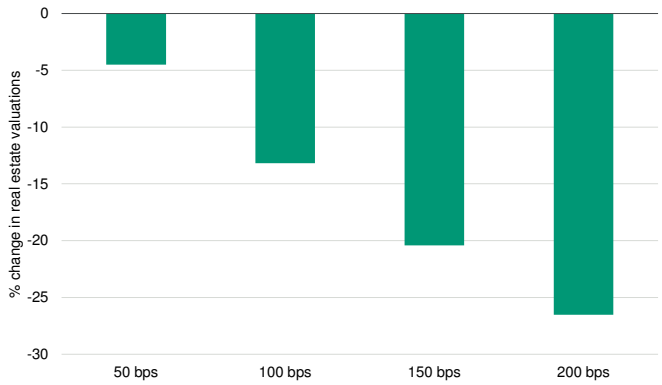


Sources: Cushman & Wakefield Research, Haver Analytics

Exhibit 29

Possible impact of rising property yields on commercial real estate valuations

Illustration for Europe



Assumptions: Rental costs and income rise in line with inflation target over a three-year period. Net rental yields are assumed to start at 4.5%, broadly in line with the current level of European prime commercial real estate. The subsequent assumed rise in yields indicated on the X-axis corresponds to the estimated decline in valuations.
Source: Moody's Investors Service

Tightened financial conditions could further strain vulnerable EM currencies and bonds

One factor currently underpinning the relative calm in financial markets is the continued provision of unprecedented levels of liquidity to the global financial system by major central banks. This liquidity has helped lower the cost of borrowing globally, for corporates and sovereigns. Therefore, it is likely that any tightening in financial conditions could strain vulnerable EM currencies and bonds. The most vulnerable sovereigns are generally those with low debt affordability, shorter maturities and high debt levels. Based on scenario analysis, Latin America and the Caribbean and sub-Saharan Africa are most exposed via weaker debt affordability.[14]

Pressure on currencies arising from US monetary tightening will also exacerbate the strain on countries with high external vulnerabilities. Fronter market sovereigns are often most vulnerable to a shift in external financial conditions thanks to their high reliance on external financing; examples include Ghana and Mongolia.[15] But larger EMs are also vulnerable; and based on a range of common indicators including our External Vulnerability Indicator,[16] some major EMs — in particular Argentina and Turkey — look more exposed than others (Exhibit 30). To a lesser extent, Hungary, South Africa, Chile and Poland also exhibit external vulnerability with either lower foreign-currency reserves or elevated government debt, or both.

Exhibit 30

Argentina and Turkey are among the most vulnerable EM countries

	Rating	Current account % GDP (2018F)	Foreign currency reserve / month import (2018)	External vulnerability indicator (2018F)	Govt FC debt/total govt debt (2018F)	Gen. Gov. debt/GDP (2018F)	Gen. Gov. IP/Gen. Gov. revenue (2018F)	Weighted average term to maturity
Argentina	B2	-4.1	10.5	154.5	69.0	61.7	12.4	7-10 year
Brazil	Ba2	-1.4	27.7	43.2	5.0	76.9	15.7	5-7 year
Chile	Aa3	-1.9	6.6	227.5	17.8	24.8	4.1	7-10 year
China	A1	1.0	19.5	38.9	0.5	37.3	7.6	7-10 year
Colombia	Baa2	-2.6	12.3	90.4	32.5	48.5	12.1	>10 year
Czech Republic	A1	0.8	9.6	N.A.	15.0	32.8	1.7	5-7 year
Hungary	Baa3	2.1	2.9	135.5	22.2	71.3	6.0	<5 years
India	Baa2	-2.5	10.0	64.9	3.3	68.3	22.4	7-10 year
Indonesia	Baa2	-1.8	8.5	51.3	41.0	29.3	13.3	7-10 year
Korea	Aa2	5.4	9.5	11.4	1.4	38.4	4.6	5-7 year
Malaysia	A3	2.6	5.7	145.6	2.9	46.9	11.7	7-10 year
Mexico	A3	-1.3	4.5	52.9	23.0	34.5	10.4	7-10 year
Peru	A3	-1.3	16.9	19.7	40.5	27.9	6.1	7-10 year
Philippines	Baa2	-1.5	8.5	25.9	34.9	37.3	11.9	7-10 year
Poland	A2	0.1	5.1	108.8	31.2	49.5	3.7	<5 years
Russia	Ba1	3.8	21.9	23.9	19.1	16.7	2.6	7-10 year
South Africa	Baa3	-2.7	6.6	96.9	9.8	55.5	10.3	>10 year
Thailand	Baa1	10.1	10.1	41.2	1.9	32.8	5.1	5-7 year
Turkey	Ba2	-6.7	3.7	228.3	41.0	28.3	6.9	5-7 year

The external vulnerability indicator is short-term debt and principal payments on long-term debt falling due in 2018 divided by the stock of official foreign reserves at the end of 2017. For maturity profile, we sourced data from the International Monetary Fund World Economic Outlook and Fiscal Monitor, Bloomberg, national authorities and the World Bank Global Development Finance database, which we complemented with our own estimates where necessary. For details, see Weakest MENA and APAC sovereigns would be most sensitive to an interest rate shock.

Sources: Moody's Investors Service, Haver Analytics

Appendix - Detailed data on banking systems, asset prices and private issuance

Exhibit 31

Banking system outlooks and key banking metrics

Countries and outlook	Asset risk: problem loans/gross loans				Capital: TCE/RWA				Profitability: net income/tangible assets				Credit costs: loan provisions/gross loans			
	2011-2015	2016	2017	Projection	2011-2015	2016	2017	Projection	2011-2015	2016	2017	Projection	2011-2015	2016	2017	Projection
Global median	4.3%	3.7%	3.5%	←→	12.0%	13.1%	13.6%	←→	1.1%	1.0%	1.0%	↓	0.9%	0.7%	0.7%	←→
North America	3.3%	2.0%	1.7%		10.6%	11.8%	12.2%		0.8%	0.9%	1.0%		0.6%	0.6%	0.6%	
Canada	0.7%	0.7%	0.5%	←→	10.4%	11.8%	11.6%	←→	0.9%	0.8%	0.9%	←→	0.3%	0.3%	0.3%	←→
USA	3.5%	2.1%	1.8%	←→	10.6%	11.8%	12.3%	←→	0.8%	0.9%	1.0%	↑	0.7%	0.6%	0.6%	←→
Western Europe	6.5%	5.7%	5.0%		11.5%	14.5%	15.4%		0.2%	0.3%	0.4%		0.7%	0.5%	0.4%	
Austria	8.5%	5.4%	4.3%	↓	9.7%	13.1%	13.7%	↑	0.3%	0.6%	0.9%	←→	1.0%	0.3%	0.1%	←→
Belgium	4.7%	3.9%	3.3%	←→	13.8%	14.9%	16.2%	←→	0.4%	0.7%	0.7%	↓	0.4%	0.2%	0.1%	←→
Cyprus	40%	43%	40%	↓	7.6%	13.9%	12.2%	↑	-3.6%	0.0%	-2.0%	↑	3.8%	2.3%	4.5%	↓
Denmark	3.2%	2.2%	1.8%	←→	14.5%	18.5%	20%	←→	0.3%	0.6%	0.7%	←→	0.3%	0.0%	-0.1%	←→
Finland	2.2%	3.5%	3.9%	↓	17.0%	23%	19.8%	←→	0.5%	0.6%	0.7%	←→	0.1%	0.1%	0.0%	←→
France	4.9%	4.4%	3.9%	←→	11.3%	13.5%	13.5%	←→	0.3%	0.4%	0.4%	←→	0.5%	0.3%	0.2%	←→
Germany	3.9%	3.1%	2.5%	←→	12.2%	15.3%	15.6%	←→	0.2%	0.2%	0.2%	←→	0.3%	0.3%	0.3%	←→
Greece	36%	49%	48%	←→	0.3%	4.7%	4.3%	←→	-1.3%	-0.8%	-0.1%	←→	4.3%	1.7%	2.3%	←→
Ireland	24%	14.6%	9.7%	←→	11.5%	17.4%	19.2%	←→	-1.0%	1.0%	0.7%	↓	2.1%	-0.2%	0.0%	↑
Italy	15.7%	16.4%	14.9%	←→	8.9%	10.4%	13.2%	←→	-0.1%	-0.6%	0.3%	←→	1.3%	1.7%	1.0%	↓
Netherlands	2.7%	2.7%	2.6%	←→	13.0%	15.9%	16.9%	←→	0.4%	0.4%	0.5%	←→	0.4%	0.1%	0.0%	←→
Norway	1.6%	1.7%	1.4%	←→	12.6%	16.8%	17.7%	←→	0.8%	0.8%	0.9%	←→	0.2%	0.4%	0.1%	←→
Portugal	9.9%	11.9%	10.0%	←→	5.7%	5.9%	9.9%	←→	-0.3%	-0.6%	0.0%	←→	1.2%	1.9%	1.0%	←→
Spain	7.7%	6.4%	5.5%	↓	6.9%	8.6%	8.9%	←→	0.1%	0.4%	0.1%	←→	1.7%	0.8%	0.9%	←→
Sweden	0.8%	0.6%	0.5%	←→	18.7%	27%	27%	←→	0.6%	0.7%	0.8%	←→	0.0%	0.1%	0.1%	←→
Switzerland	0.8%	0.7%	0.6%	←→	13.1%	16.1%	16.6%	←→	0.4%	0.2%	0.4%	←→	0.0%	0.0%	0.0%	←→
UK	4.6%	2.1%	1.8%	←→	12.8%	16.4%	18.4%	←→	0.2%	0.7%	0.4%	←→	0.6%	0.2%	0.2%	↑
Ctrl & East Europe	7.8%	6.1%	4.3%		13.1%	13.6%	13.3%		1.1%	1.3%	1.3%		1.5%	0.9%	0.7%	
Bulgaria (*)	19.6%	18.7%		↓	18.3%	18.0%		←→	1.1%	1.9%		←→	3.0%	1.4%		←→
Czech Republic	5.6%	3.6%	2.7%	←→	17.3%	18.3%	19.2%	←→	1.5%	1.3%	1.3%	↓	0.6%	0.3%	0.0%	←→
Hungary	19.4%	13.9%	8.6%	↓	10.8%	14.7%	13.5%	←→	-0.2%	1.4%	1.9%	←→	4.1%	1.1%	0.3%	←→
Poland	7.1%	6.3%	5.9%	←→	14.3%	15.2%	15.7%	←→	1.3%	0.9%	1.0%	↓	0.9%	0.6%	0.7%	←→
Romania (*)	19.9%	11.3%		←→	14.2%	15.2%		←→	0.2%	1.6%		←→	4.0%	1.2%		←→
Slovakia	5.3%	4.0%	3.6%	←→	17.0%	17.4%	17.0%	←→	1.2%	1.0%	1.0%	←→	0.7%	0.5%	0.3%	←→
Slovenia (*)	28%	18%	13%	↓	10.9%	19.5%	19.0%	↑	-3.1%	1.0%	1.6%	←→	4.9%	0.1%	-0.6%	↑
Turkey	2.8%	3.1%	2.8%	↑	11.0%	10.3%	10.1%	←→	1.5%	1.4%	1.4%	←→	0.9%	1.2%	1.0%	↑
APAC-Advanced	1.6%	1.1%	1.0%		12.2%	11.8%	12.1%		0.5%	0.4%	0.5%		0.2%	0.2%	0.0%	
Australia	1.3%	0.9%	0.8%	↑	11.2%	11.8%	12.2%	↑	0.9%	0.7%	0.9%	←→	0.2%	0.2%	0.1%	←→
Hong Kong	0.5%	0.7%	0.5%	←→	14.6%	16.6%	16.9%	←→	1.3%	1.1%	1.1%	←→	0.2%	0.2%	0.1%	←→
Japan	1.8%	1.2%	1.1%	←→	12.6%	11.4%	11.4%	←→	0.3%	0.3%	0.3%	↓	0.0%	0.0%	-0.1%	←→
Korea	1.8%	1.3%	1.2%	←→	11.9%	12.5%	13.1%	←→	0.5%	0.3%	0.5%	←→	0.7%	0.5%	0.3%	←→
New Zealand	1.1%	0.5%	0.5%	←→	10.5%	10.6%	11.3%	←→	1.1%	1.0%	1.1%	↓	0.2%	0.1%	0.0%	←→
Singapore	1.1%	1.4%	1.6%	←→	12.0%	13.3%	14.6%	←→	1.0%	0.9%	0.9%	↑	0.2%	0.3%	0.4%	←→
Taiwan	1.7%	1.1%	1.1%	←→	9.8%	10.7%	11.4%	←→	0.5%	0.6%	0.5%	←→	0.1%	0.2%	0.2%	←→

Shading indicates the outlook of the system (and expected trend of each driver): green, positive (improving); light orange, stable (stable); dark orange, negative (deteriorating). Systems marked with (*) do not have a formal outlook and projections are based on a top/down, macroeconomic driven model. We use the latest available data for 2017. Projections for credit costs are also based on a macrodriven model. Gaps for latest data reflect missing data. All data points correspond to Moody's rated banks. For some systems, asset risk and capital is assessed as a single driver.

Source: Moody's Investors Service

Exhibit 32

Banking system outlooks and key banking metrics (continued)

Countries and outlook	Asset risk: problem loans/gross loans				Capital: TCE/RWA				Profitability: net income/tangible assets				Credit costs: loan provisions/gross loans			
	2011-2015	2016	2017	Projection	2011-2015	2016	2017	Projection	2011-2015	2016	2017	Projection	2011-2015	2016	2017	Projection
Gulf countries	4.0%	2.7%	2.9%		15.8%	15.4%	16.0%		1.8%	1.6%	1.7%		0.8%	0.8%	0.8%	
Bahrain	8.9%	7.7%	7.3%	↑	15.3%	13.9%	14.2%	←→	1.3%	1.6%	1.5%	↓	1.0%	0.8%	1.1%	←→
Qatar	1.5%	1.7%	1.8%	↑	19.4%	14.4%	15.5%	←→	2.1%	1.5%	1.4%	↓	0.4%	0.5%	0.5%	←→
Kuwait	4.7%	2.1%	1.8%	←→	14.9%	14.7%	14.5%	←→	1.1%	1.1%	1.1%	↑	1.4%	0.9%	0.9%	↓
Oman	2.2%	2.1%	2.3%	↑	13.5%	13.8%	13.9%	←→	1.5%	1.3%	1.2%	↓	0.4%	0.4%	0.3%	↑
Saudi Arabia	1.9%	1.6%	2.0%	↑	16.3%	16.6%	17.3%	←→	2.0%	1.9%	2.0%	←→	0.6%	0.7%	0.7%	←→
UAE	8.5%	4.8%	5.1%	↑	14.1%	14.4%	14.7%	←→	1.5%	1.4%	1.5%	←→	1.2%	1.2%	1.0%	←→
CIS	11.9%	17.0%	14.2%		10.8%	10.7%	10.8%		0.8%	0.8%	0.6%		2.1%	2.4%	3.2%	
Azerbaijan (*)	13.7%	46%	18%	←→	10.7%	4.1%	20%	↓	0.1%	-8.2%	4.8%	←→	3.1%	8.2%	0.4%	↓
Belarus	13.1%	18.6%	14.1%	←→	15.7%	11.8%	13.9%	←→	-0.5%	0.7%	0.8%	←→	1.5%	5.1%	4.1%	←→
Georgia (*)	6.4%	5.8%	4.1%	←→	15.0%	12.0%	12.8%	↑	2.9%	2.8%	2.8%	←→	1.4%	1.5%	1.7%	←→
Kazakhstan	33%	35%	19%	↓	13.0%	13.0%	13.9%	←→	1.0%	1.1%	-0.2%	↑	3.1%	2.2%	6.7%	↓
Russia	8.4%	11.7%	11.0%	←→	9.8%	10.7%	9.5%	↑	1.1%	1.1%	0.4%	←→	1.7%	2.0%	3.0%	←→
Ukraine	33%	63%	59%	↓	14.6%	6.6%	12.4%	←→	-3.4%	-1.0%	0.0%	↑	7.1%	4.7%	2.9%	↓
Uzbekistan (*)	7.2%	2.5%	2.6%	↑	14.9%	13.2%	18.5%	←→	1.3%	1.2%	2.8%	↓	1.0%	0.7%	2.5%	↑
Africa and Levant	4.5%	5.3%	5.7%		10.6%	11.3%	12.1%		1.4%	1.5%	1.5%		0.8%	1.4%	1.5%	
Egypt	5.2%	4.9%	5.2%	←→	5.7%	6.7%	8.0%	↑	1.1%	1.7%	1.3%	←→	0.5%	0.6%	1.4%	←→
Israel	2.8%	1.6%	1.3%	←→	9.1%	9.7%	9.9%	←→	0.6%	0.5%	0.6%	←→	0.3%	0.1%	0.1%	←→
Jordan (*)	6.1%	4.8%	7.4%	←→	18.5%	17.0%	16.9%	←→	1.2%	1.1%	1.0%	←→	0.7%	0.7%	0.9%	←→
Kenya (*)	4.6%	5.0%	5.9%	←→	15.3%	13.9%	13.7%	←→	3.7%	3.7%	3.2%	←→	0.8%	1.4%	1.4%	←→
Lebanon	4.1%	4.0%	4.6%	↑	10.5%	11.6%	12.6%	←→	1.2%	1.2%	1.2%	↓	0.9%	1.7%	0.3%	←→
Mauritius (*)	4.9%	8.3%	4.9%	↑	12.7%	12.9%	13.0%	←→	2.2%	1.8%	1.9%	←→	0.8%	0.7%	0.7%	←→
Morocco	6.8%	7.8%	7.7%	←→	8.1%	8.7%	8.2%	←→	1.0%	1.1%	1.1%	←→	0.9%	0.9%	0.9%	←→
Nigeria	3.8%	8.3%	10.1%	↑	14.0%	15.1%	17.0%	↓	2.0%	2.0%	2.3%	↓	1.5%	3.6%	3.1%	←→
South Africa	3.6%	2.9%	2.8%	↑	11.6%	11.9%	12.4%	←→	1.2%	1.3%	1.3%	↓	0.9%	0.8%	0.7%	←→
Tanzania (*)	6.2%	10.0%	9.7%	←→	14.5%	16.2%	14.4%	←→	3.0%	2.2%	1.2%	←→	1.4%	2.3%	4.7%	←→
Tunisia (*)	15.5%	13.4%	12.4%	←→	8.3%	9.5%	9.5%	←→	0.6%	1.2%	1.3%	←→	1.1%	0.8%	1.2%	←→
Emerging Asia	2.2%	3.4%	3.3%		10.6%	11.0%	10.9%		1.2%	0.9%	0.9%		0.8%	1.3%	1.3%	
China	1.1%	1.7%	1.5%	←→	10.5%	10.9%	10.7%	←→	1.1%	0.9%	0.9%	↓	0.7%	1.0%	1.0%	←→
India	4.4%	9.6%	9.5%	←→	8.8%	8.5%	8.9%	←→	0.7%	0.2%	0.0%	↑	1.4%	2.7%	3.0%	↓
Indonesia	4.1%	7.6%	7.2%	↓	15.8%	17.1%	17.4%	←→	2.4%	1.8%	2.1%	↑	1.2%	2.6%	1.7%	↓
Malaysia	2.0%	1.9%	1.9%	←→	11.4%	13.8%	14.8%	↑	1.2%	1.0%	1.1%	←→	0.2%	0.4%	0.3%	←→
Mongolia	4.6%	7.4%	6.8%	↑	10.8%	12.1%	14.5%	↓	1.6%	-0.1%	0.7%	↓	0.7%	2.5%	1.9%	↑
Pakistan	12.2%	9.8%	9.3%	←→	9.6%	7.6%	7.0%	←→	1.7%	1.5%	1.2%	←→	1.0%	0.1%	-0.1%	←→
Philippines	2.3%	1.5%	1.3%	←→	11.9%	12.8%	13.6%	←→	1.3%	1.1%	1.1%	←→	0.5%	0.4%	0.4%	←→
Sri Lanka	3.3%	2.4%	3.5%	↑	8.1%	7.8%	8.8%	←→	1.3%	1.5%	1.4%	↓	0.5%	0.3%	0.6%	↑
Thailand	3.6%	3.7%	3.8%	←→	12.3%	13.6%	14.0%	↑	1.4%	1.2%	1.1%	←→	1.0%	1.4%	1.6%	←→
Vietnam	7.6%	7.2%	6.1%	←→	10.5%	7.9%	8.0%	↓	0.7%	0.7%	0.9%	←→	1.2%	1.1%	1.0%	←→
Latin America	2.6%	2.7%	2.6%		9.5%	10.2%	10.8%		1.6%	1.4%	1.5%		2.6%	2.8%	2.8%	
Argentina	2.0%	2.0%	2.2%	←→	12.1%	12.0%	11.6%	←→	2.9%	2.8%	2.4%	↓	1.9%	1.5%	1.8%	←→
Bolivia	1.5%	1.5%	1.7%	↑	12.4%	12.0%	10.9%	↓	1.2%	1.1%	1.0%	↓	1.9%	0.6%	0.7%	↑
Brazil	2.9%	3.5%	3.2%	←→	7.3%	8.7%	9.7%	←→	1.2%	1.0%	1.2%	←→	3.1%	3.7%	3.5%	←→
Chile	2.1%	1.9%	1.9%	←→	7.7%	7.8%	8.5%	←→	1.4%	0.9%	1.0%	←→	1.2%	1.1%	1.0%	←→
Colombia	1.5%	1.9%	2.4%	←→	7.5%	7.9%	8.2%	←→	1.6%	2.0%	1.3%	←→	1.4%	1.7%	2.3%	←→
Mexico	2.7%	2.0%	2.0%	←→	11.9%	12.2%	12.8%	←→	1.4%	1.2%	1.5%	←→	3.1%	2.8%	2.9%	←→
Paraguay	1.8%	2.1%	2.0%	↓	12.7%	14.4%	15.0%	↑	1.8%	1.7%	2.0%	←→	1.1%	1.7%	1.5%	↓
Peru	2.4%	3.0%	3.2%	↓	10.7%	11.9%	12.7%	↑	2.0%	2.2%	2.1%	←→	2.2%	2.3%	2.2%	←→
Uruguay	2.4%	3.6%	3.7%	←→	14.2%	13.5%	14.1%	←→	1.5%	0.4%	1.4%	←→	0.8%	1.6%	1.8%	←→

Shading indicates the outlook of the system (and expected trend of each driver): green, positive (improving); light orange, stable (stable); dark orange, negative (deteriorating). Systems marked with (*) do not have a formal outlook and projections are based on a top/down, macroeconomic driven model. We use the latest available data for 2017. Projections for credit costs are also based on a macrodriven model. Gaps for latest data reflect missing data. All data points correspond to Moody's rated banks. For some systems, asset risk and capital is assessed as a single driver.

Sources: Moody's Investors Service

Exhibit 33

Asset prices, private leverage and current account deficits by country

	Country	Asset prices	Equity prices		Sovereign bond yields		House prices		Effective exchange rate		Private credit % GDP		Current account % GDP	
		Level	6m % Δ	Level	6m bps Δ	Level	6m % Δ	Level	6m % Δ	Level	6m ppts Δ	Level	12m ppts Δ	Level
Advanced Economies	Australia		2		12		0.3		-2.0		-6.5	197	-0.6	-2.6
	Austria		-5		20		4.4		0.1		-2.2	142	0.8	2.1
	Belgium		-6		25		-0.5		0.1		-7.1	218	0.7	0.0
	Canada		0		30		0.6		-2.3		-3.1	216	-0.9	-3.2
	Cyprus		0				2.7		0.1				13.7	-3.3
	Czech Republic		-1		67		4.8		-0.5		-0.5	91	-2.9	0.4
	Denmark		1		0		-1.7		0.2		-6.1	222	-4.1	6.6
	Finland		7		12		-0.3		0.1		-4.7	181	-0.1	0.7
	France		1		7		1.9		0.1		0.5	193	1.0	-0.4
	Germany		-3		4		3.1		0.1		0.4	108	0.5	8.2
	Greece		-6		0		-0.5		0.1		-5.4	116	0.2	-1.0
	Hong Kong		-3						-0.9		4.7	305	-0.9	4.1
	Ireland		1		38		2.6		0.1					0.0
	Italy		-2		95		0.0		0.1		-2.6	113	-0.2	2.7
	Japan		-1		-1		-11.7		2.9		1.5	161	-0.6	3.9
	Netherlands		1		12		4.7		0.1		-8.6	222		0.0
	New Zealand		7		14		3.5		0.0		-3.4	176	-0.5	-2.8
	Norway		13		32		0.3		4.0		-10.8	244	-0.2	5.5
	Portugal		4		2		1.2		0.1		-6.7	176	0.1	0.5
	Slovakia		1		9		0.5		0.1		3.9	141	-0.6	-2.2
	Slovenia		10		0		3.7		0.1		-3.6	126	2.0	6.9
	Spain		-4		-9		3.0		0.1		-8.1	159	-0.3	1.8
	Sweden		0		-17		1.0		-3.5		-5.3	233	-0.9	3.1
	Switzerland		-4		11		0.7		0.9		1.3	241	2.7	10.5
	United Kingdom		2		10		1.5		0.4		-0.2	173	-0.2	-3.9
	United States		1		51		4.4		1.3		-0.9	152	-0.2	-2.4
Emerging Markets	Argentina		-9						-31.1		1.5	22	-1.5	-5.2
	Brazil		-5		143		-0.4		-9.4		-1.2	68	-0.1	-0.5
	Bulgaria		-6						1.0				-0.8	4.7
	Chile		4		-4		3.3		1.4		-4.1	143	1.7	-1.0
	China		-8		-39		-0.7		3.1		-4.2	212	-1.7	0.9
	Colombia		5		11		0.4		5.2		-1.7	64	1.1	-3.1
	Hungary		-8		130		0.6		-3.0		-3.7	88	0.1	3.2
	India		4		71		2.4		-4.8		-1.0	55	-1.5	-1.9
	Indonesia		-4		87		2.0		-3.2		-1.0	40	-1.2	-2.0
	Israel		-3		22		-2.2		-1.6		-0.9	111	-1.1	2.6
	Malaysia		-6		26		-0.1		2.1		-5.0	135	3.0	3.7
	Mexico		-3		57		4.5		-5.2		-0.1	43	1.4	-1.3
	Peru		-1						0.9				-0.2	-1.3
	Philippines		-16		68				-5.6				0.9	-0.5
	Poland		-9		-5		1.3		-2.3		-3.3	82	-1.4	0.0
	Romania		4		61		1.2		0.1				-0.7	-3.6
	Russia		0		8		1.7		-6.4		-1.8	65	2.0	2.7
	Singapore		-4		54		4.7		-0.1		1.6	184	-1.4	18.5
	South Korea		-6		19		0.9		-1.0		-4.1	192	-2.6	4.5
	South Africa		-3		-8		0.1		-0.9		-1.3	72	-2.8	-3.1
	Taiwan		5		-1		1.3		-0.7				0.1	14.4
	Thailand		-9		21		4.9		0.5		-2.2	120	-0.2	10.5
	Turkey		-16		396		4.0		-16.3		-2.5	87	-2.9	-6.3

1-1.3 standard deviations above 10-year average
1.3-2 standard deviations above 10-year average
>2 standard deviations above 10-year average
NA

Shading colours are based on the number of standard deviations away from 10-year averages: darker shading indicates more elevated asset prices or deficits. Equity and House Price indices have been divided by nominal GDP given the general upward trend in those nominal asset prices; but six-month changes in the table are based on nominal indices. House prices and private credit are based on Q1 2018 and Q4 2017 data, respectively. Current account positions are four-quarter averages. For more details of our approach to constructing asset price indices, see Reflation expectations drive advances in equity and property markets.

Sources: Haver Analytics, Moody's Investors Service

Exhibit 34

Global private issuance heatmap

	Amount (USD bn)			% Changes									
	Year to date			Year-on-Year								Quarter-on-Quarter	
	2016	2017	2018	2016	2017	2018	2017				2018		
							Q1	Q2	Q3	Q4	Q1	Q2	Q2
Global													
Total Private sector (*)	2,132	2,237	2,038	0%	5%	-9%	9%	0%	-3%	11%	-8%	-10%	-7%
Financial Institutions (*)	792	868	813	-7%	10%	-6%	13%	6%	-1%	18%	-6%	-7%	-19%
Corporates	1,341	1,369	1,226	6%	2%	-10%	7%	-2%	-4%	7%	-9%	-11%	2%
IG	1,119	1,059	1,012	14%	-5%	-4%	-8%	-3%	-5%	5%	-5%	-3%	9%
HY	221	310	213	-23%	40%	-31%	124%	0%	-1%	14%	-22%	-41%	-28%
Advanced Economies													
Total Private sector	1,487	1,618	1,412	-3%	9%	-13%	23%	-4%	-3%	16%	-15%	-10%	-8%
Financial Institutions	624	642	614	-12%	3%	-4%	11%	-6%	-5%	8%	-6%	-2%	-23%
Corporates	862	975	798	5%	13%	-18%	34%	-3%	-1%	22%	-22%	-14%	5%
IG	691	759	655	19%	10%	-14%	19%	2%	0%	19%	-18%	-9%	9%
HY	171	217	142	-29%	27%	-34%	127%	-17%	-7%	31%	-36%	-33%	-11%
Emerging Markets													
Total Private sector	646	619	626	9%	-4%	1%	-18%	12%	-4%	3%	16%	-11%	-4%
Financial Institutions	167	226	199	16%	35%	-12%	23%	47%	8%	41%	-4%	-19%	-5%
Corporates	478	393	428	6%	-18%	9%	-33%	-1%	-8%	-14%	28%	-6%	-4%
IG	428	300	357	6%	-30%	19%	-45%	-12%	-11%	-13%	32%	9%	10%
HY	50	93	71	7%	85%	-24%	118%	66%	16%	-18%	17%	-57%	-54%
North America													
Financial Institutions	240	287	240	-2%	20%	-17%	22%	17%	-3%	-7%	-14%	-19%	-17%
Corporates	541	599	420	27%	11%	-30%	36%	-7%	5%	13%	-29%	-31%	-5%
IG	416	438	328	43%	5%	-25%	21%	-7%	8%	22%	-26%	-25%	2%
HY	125	161	93	-8%	29%	-43%	95%	-7%	-3%	-6%	-38%	-48%	-26%
Europe (ex emerging)													
Financial Institutions	289	274	296	-24%	-5%	8%	0%	-12%	-7%	30%	4%	14%	-23%
Covered Bonds	149	126	368	24%	-15%	191%	-21%	-5%	16%	21%	19%	44%	-12%
Corporates	273	307	312	-21%	12%	2%	21%	4%	-18%	36%	-7%	12%	10%
IG	231	257	272	-5%	11%	6%	7%	16%	-14%	8%	-3%	15%	11%
HY	42	49	40	-59%	18%	-18%	255%	-35%	-35%	250%	-27%	-8%	0%
Japan													
Financial Institutions	39	34	29	36%	-11%	-17%	11%	-38%	0%	-1%	-26%	5%	-35%
Corporates	36	59	54	-7%	64%	-9%	89%	43%	4%	40%	-30%	16%	45%
Australasia													
Financial Institutions	57	47	50	2%	-17%	5%	18%	-52%	-9%	15%	-6%	33%	-41%
Corporates	12	11	11	5%	-13%	6%	246%	-45%	68%	29%	-31%	35%	147%
China													
Financial Institutions	99	125	100	117%	27%	-20%	11%	47%	10%	54%	-30%	-11%	34%
Corporates	359	222	266	39%	-38%	20%	-56%	-15%	-15%	-16%	53%	-2%	0%
Latin America & Caribbean													
Financial Institutions	11	8	9	-59%	-29%	17%	-64%	27%	32%	26%	148%	-42%	-48%
Corporates	44	46	49	-42%	3%	7%	-1%	8%	62%	-3%	11%	3%	-17%
Eastern Europe													
Financial Institutions	5	11	9	-76%	151%	-18%	138%	159%	-10%	-16%	58%	-60%	-54%
Corporates	15	27	22	22%	81%	-18%	121%	63%	34%	-53%	14%	-38%	-13%
Middle East & Africa													
Financial Institutions	10	14	18	61%	48%	23%	162%	-8%	9%	6%	38%	2%	-47%
Corporates	5	10	13	-77%	117%	32%	-	9%	-88%	-1%	59%	0%	-49%
North and South East Asia & India													
Financial Institutions	43	67	62	-9%	54%	-6%	59%	51%	3%	23%	17%	-26%	-22%
Corporates	55	88	77	-33%	60%	-12%	85%	42%	25%	6%	-12%	-12%	5%

Green (orange) shade indicates higher (lower) issuance volume from reference quarter. A darker color shading indicates a larger change. (*) This table provides information on medium- and long-term private (excluding sovereign) debt (with initial maturities over one year) issued by rated and non-rated issuers globally sourced from Dealogic DCM. The data have not been adjusted by Moody's. Financial institutions issuance excludes covered bonds and government guarantee debt. Data were updated on 2 July 2018.
Sources: Dealogic, Moody's Investors Service

Moody's related publications

» Moody's Financial Monitor: Financial risks remain moderate; asset prices consistent with low interest rates, 15 January 2018

» North American Covenant Quality Indicator: Protection stablizes, even as private equity scores continue to deteriorate, 10 July 2018

» Cross-Sector: June 2018 Default Report, 10 July 2018

» Sovereigns - Global: US dollar appreciation raises credit risk for sovereigns with large external funding needs, 27 June 2018

» High corporate leverage signals future credit stress even as the default rate remains very low, 24 May 2018

» Rising interest rates credit neutral for most asset classes, credit negative for CMBS, 24 May 2018

» Weakest MENA and APAC sovereigns would be most sensitive to an interest rate shock, 13 May 2018

» CLOs - Global: Falling WARR is latest hit to trading flexibility, ability to absorb further collateral weakening, 23 April 2018

To access any of these reports, click on the entry above. Note that these references are current as of the date of publication of this report and that more recent reports may be available. All research may not be available to all clients.

Endnotes

1 Other things being equal, a lower equity risk premium increases the risk of equities being overvalued.

2 For details, see Housing - Global: High house prices pose persistent risk where slow to adjust to homeownership costs, 14 December 2017.

3 We constructed a simple mortgage repayment model with the following assumptions: LTV = 90% (10% cash down payment), Length of mortgage = 25 years, Interest rate (flat over mortgage) = 5%, Share of households turning over housing in each year = 10%. We modelled house prices to start at 100 for simplicity and undergo a 20% jump in year 1 and remain flat at that level thenceforth.

4 For details, see Bank of England Quarterly Bulletin, 2003.

5 Measured as absolute daily returns divided by daily volumes. Amihud, Y (2002). Illiquidity and stock returns: Cross-section and time series effects, *Journal of Financial Markets* 5, 31-56. Also see Moody's Financial Monitor: Liquidity events are more likely to be fleeting than sustained, 20 July 2017.

6 Bank credit standards, usually presented as "Net tightening/weakening" in surveys by the ECB and Federal Reserve, are indexed and normalised to create a time series of relative tightening/weakening from the start of the survey. The Fed Senior Loan Officer Opinion Survey starts in Q1 1990, and the ECB Bank Lending Survey starts in Q1 2003.

7 The index starts in 2011. A higher score denotes weaker covenant quality on a scale from 1.0 to 5.0. For details, see North American Covenant Quality Indicator: Protection stablizes, even as private equity scores continue to deteriorate.

8 EMEA companies entering investment grade since June 2017 are now rated Baa. Baa rated companies account for 53% of total debt, up from 50% in 2017. For details, see Four-year debt maturities rise to $1.4 trillion following rating upgrades.

9 We simulate the default rates over three years by applying the empirical three-year cumulative defaults rates seen for the 2008 cohort to the current rating distribution.

10 For details, see Bank of England Quarterly Bulletin 2014 Q4.

11 To simulate an extremely adverse scenario, we used the 1997 Asian crisis as our benchmark and applied the change in net interest income in Thailand, the most harshly affected banking system during that crisis. Net interest income at Thai banks fell by 71.7% in 1998 and 12.7% in 1999. For details see Macro Stress Test: Significant Recapitalization Would be Needed if a Balance of Payments Crisis Were to Materialize, 12 October 2016.

12 For details, see CLOs - Global: Falling WARR is latest hit to trading flexibility, ability to absorb further collateral weakening, 23 April 2018.

13 For details, see Rising interest rates credit neutral for most asset classes, credit negative for CMBS, 24 May 2018.

14 For details, see Weakest MENA and APAC sovereigns would be most sensitive to an interest rate shock, 13 May 2018.

15 For details, see Sovereigns - Global: US dollar appreciation raises credit risk for sovereigns with large external funding needs, 27 June 2018.

16 Our External Vulnerability Indicator is calculated as: EVI = (short-term external debt + currently maturing long-term external debt + total nonresident deposits over one year)/Official foreign exchange reserves.

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