JPMorgan

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UK Mortgages and the UK RMBS Market

Overview

This research piece aims to provide investors with a review of the UK mortgage market's fundamentals, including the competitive dynamic among mortgage lenders, trends in new mortgage origination, and recent developments that specifically relate to securitisation. We conclude with an outlook for 2002 and a discussion of the relative value of UK RMBS (Residential Mortgage Backed Securities) in the global structured products market.

Supply

- The UK RMBS market has grown steadily since its inception in 1987. Total supply reached a record US$22 billion in 2001 (Chart 1).
- Following the example of Australian RMBS issuers, Abbey National completed the first ever global RMBS transaction (dollar-denominated SEC registered available for sale to US investors) in 2000. Since then, UK global RMBS issuance has totaled more than US$16 billion.
- In 2002, we expect UK global SEC-registered volumes to reach over US$10 billion, as established issuers and newcomers access the securitisation market.

Mortgage Market Developments

- Last year, UK mortgage lenders extended a record amount of new home loans. Historically low mortgage rates and a buoyant housing market helped propel lending to these new levels.
- In the past decade, UK lenders have made significant advances in borrower credit scoring, leading to lower delinquencies and losses.
- Mortgage margins remain under pressure as competition for prime borrowers remains fairly intense among the UK's top lenders.
- Flexible mortgages continue to grow in popularity (up to 60% of new lending) and ongoing product innovation characterises the lending industry.

Relative Value

- We believe that current spread levels on global RMBS transactions offer one of the best values in the entire ABS market.
- UK RMBS offer bullet maturities (via a master trust that uses "prepayment leverage" to create bullet tranches) with an attractive spread pick-up versus AAA Credit Cards (11bps for 3yr WAL). The asset class has outstanding historical credit performance.
- The dollar-denominated SEC-registered supply of UK RMBS has increased dramatically since 2000. We expect the liquidity profile to improve as the investor base continues to expand.
- UK RMBS offer investors a diversification opportunity with exposure to prime quality collateral from highly rated mortgage lenders.

Distribution of this report is restricted in certain countries. Important information concerning these and other restrictions is set forth at the end of this report.

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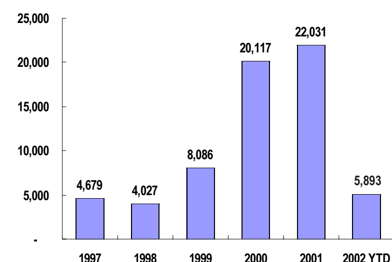
Chart 1
Historical UK RMBS Supply
Through May 20, 2002
US$ millions



Source: JPMorgan Securities Ltd.

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UK Mortgage Fundamentals

UK Mortgage Lenders

UK mortgage lenders can be divided into three basic categories: banks (including converted building societies), building societies, and specialised mortgage lenders. The UK market is dominated by the largest lenders, which are primarily banks (see Table 1). At the end of 2000, the top five lenders owned over 60% of UK mortgage assets and the top ten lenders controlled over 80% of these assets. Following the recent merger of Halifax and the Bank of Scotland (September 2001), HBOS (the merged entity) owns nearly 25% of all UK residential mortgage assets.

Table 1

Largest UK Mortgage Lenders Ranked by Mortgage Assets as of December, 2000

Rank	Name of Group	£ billion
1	Halifax plc (including Birmingham Midshires and IF)	96.3
2	Abbey National	68.6
3	Lloyds TSB	52.7
4	Woolwich plc (including Barclays)	47.3
5	Nationwide BS	41.4
6	Royal Bank of Scotland (including NatWest, Direct Line, Virgin One)	29.0
7	Alliance & Leicester plc	19.4
8	Northern Rock plc	18.6
9	Bradford & Bingley	18.3
10	Bank of Scotland	15.6

*Halifax and Bank of Scotland included separately.
Source: Council of Mortgage Lenders.

Many of the UK's banks were initially established as building societies (e.g., HBOS, Abbey National, Alliance & Leicester, Bradford & Bingley, Northern Rock). These societies are mutual organisations where depositors and borrowers are the only owners. Building societies were first established to allow members to pool their financial resources to build homes. Each member would regularly contribute funds to the building society, which effectively reduced the overall cost of a home for all members (through reduced mortgage rates).

Building societies still exist (Nationwide and Britannia are the largest) and continue to operate under the principle of mutual ownership. However, they represent a decreasing percentage of total UK mortgage lending (Chart 2). The reason for this decline is mainly because many building societies converted to publicly limited companies during the late 1980s and 1990s – a response to both the increasing competition in the financial services industry and the various financing restrictions imposed by building society regulations.

Specialised finance companies tend to have smaller market shares due to a focus on "non-conforming" or "buy-to-let" borrowers (in US parlance, borrowers for non owner-occupied properties). Companies in this category include RFC, Kensington Mortgages, Mortgages plc and a handful of others. Non-conforming borrowers are applicants who typically do not meet "high street" banking requirements. The non-conforming market falls outside the scope of this report.

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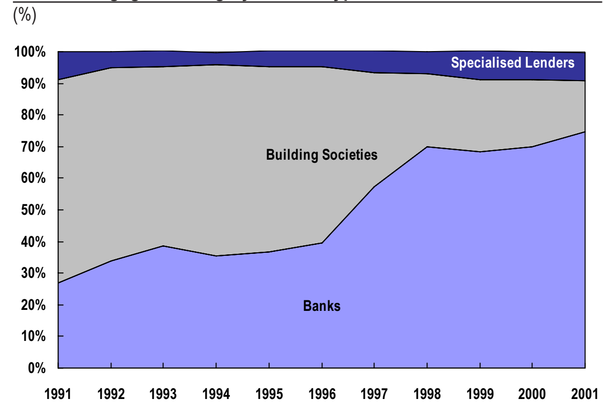
Competitive Environment

The UK mortgage market has been extremely competitive for well over a decade. New entrants have had a dramatic impact on pricing, product innovation, and the use of new technologies to reduce costs (primarily via low cost centralised mortgage processing). In 1999, a new type of lender entered the market, as life insurance companies such as Standard Life Bank (associated with Standard Life) and Egg (associated with Prudential) began to broaden their financial services into the mortgage arena. These new entrants, who competed primarily on price, did not have expensive branch networks and made extensive use of lower cost methods (e.g., telephone service centers, internet advertising) to generate new loans.

Chart 2
Gross Mortgage Lending by Lender Type
(%)



Source: Council of Mortgage Lenders.

In the past few years, the internet and other media also highlighted the pricing differentials among lenders to potential borrowers. The result of these forces has been intense price competition among lenders and a reduction in mortgage profitability. Today, in response to these developments, established lenders seek to differentiate themselves by features other than price. They emphasise innovative products that match borrowers' lifestyles, offer a high degree of flexibility, and include a "package" of financial services.

The UK banking industry has undergone some consolidation in the last two years, including a number of high profile mergers and acquisitions among the UK's leading mortgage banks (see Table 2). US-based lenders have also begun to enter the UK mortgage business, albeit with a focus on "non-conforming" borrowers. US lenders active in the UK market include RFC and Countrywide Home Loans (working together with UK servicer Global Home Loans). In the future, we expect mortgage margins to remain under pressure. On the positive side, current margins are not likely to attract new entrants to the prime market.

Table 2
UK Bank Merger and Acquisition Activity

Date	Action
Mar-00	The Royal Bank of Scotland plc acquired National Westminster Bank plc.
Oct-00	Barclays plc acquired Woolwich plc
Sep-01	Halifax plc and the Bank of Scotland plc merged to form HBOS.

Source: Bloomberg, JPMS.

Mortgage lending is a core business for many banks and offers significant potential for cross-selling other products. As a result, established lenders are

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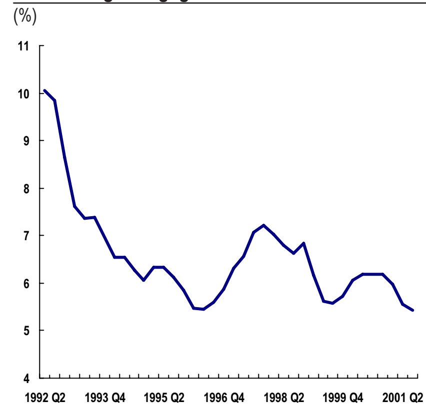
now concentrating on distinguishing their mortgage products and not competing solely on price. Customer retention has become a key focus for UK lenders. Branding strategies and other loyalty-building marketing efforts are important parts of these retention strategies.

UK lending market

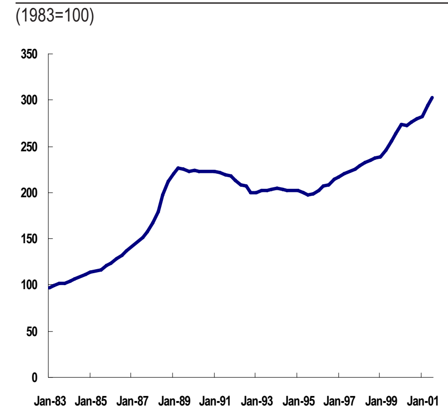
2001 was characterised by rapid growth in new lending, spurred on by historically low mortgage rates and a strong property market (see Charts 3 and 4). Total gross mortgage advances in 2001 were £161 billion (US$240 billion), according to the Bank of England and the Survey of Mortgage Lenders. Outstanding UK mortgage debt presently stands at £606 billion (US$900 billion), with new lending in 2001 34% ahead of the total for 2000. Demand for new loans remained extremely strong through the first quarter of 2002.

Chart 3
UK Floating Mortgage Rates
(%)



Source: Survey of Mortgage Lenders.

Chart 4
UK House Price Index
(1983=100)



Source: Halifax House Price Index.

A clear trend in the UK market is the increasing percentage of mortgage lending from refinancings and a declining percentage of financings from first-time home buyers. The Council of Mortgage Lenders (CML) estimates that approximately 43% of mortgage financings in 2001 were from first-time buyers (a decline from 53% seven years ago). CML points to the lack of new properties for sale and rising house prices as trends that partly explain the absence of first time buyers in the market. The rapidly developing “buy-to-let” market and the purchase of second homes as investments are also pushing property prices steadily higher, especially in urban areas such as London. These buyers may refinance existing homes to use built-up equity towards the purchase of investment properties.

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Origination, Underwriting and Servicing

Mortgage brokers

Mortgage brokers represent a vital source of new mortgage business for most major lenders. In some cases, brokers provide up to 60% of new mortgage business. Mortgage brokers assist customers by helping navigate the various product and lender offerings (e.g., cashback mortgage, interest-only mortgage, etc.) to help match borrowers with the best product available.

Some mortgage brokers cater to borrowers with specific backgrounds, such as the self-employed or those with past credit problems (i.e., defaults or County Court judgments against them). This segment is typically characterised as "non-conforming", and lending is primarily conducted through specialised mortgage lenders. Third party brokers in the UK are an important source of new applications, but they do not typically have any underwriting ability. Lenders retain full control of the underwriting process.

Branch networks

After mortgage brokers, branches are the next largest source of new business for "high street" lenders – responsible for approximately 30% of new mortgage applications. Branches continue to be an attractive alternative for customers with established relationships at a local branch or for those who prefer to meet the lender directly to review the application process.

Telephone and other distribution channels

Telephone call centres account for the remaining 10% of new mortgage origination, though new mortgage origination via the internet has been virtually non-existent. While telephone call centres have experienced growth, the complexity of the financial decision and the variability of features have prevented the internet from becoming a viable solution. However, the internet provides a substantial amount of information to potential borrowers about market rates and product types and has made the lending process far more transparent.

Perhaps the most significant development in UK underwriting is the implementation of borrower credit scoring to evaluate mortgage applicants. In contrast to the less data-focused and analytical underwriting processes used in the past, lenders today use advanced credit scoring techniques to tier borrowers according to their risk and to limit riskier applicants' loan sizes. To begin, most UK lenders use data collected by national credit reference agencies (Experian and Equifax) as inputs into their internal credit scoring models. Both Experian and Equifax are experienced international credit reference firms that collect data and record details of an individual's debt repayment history. Many lenders may also compare their internal credit scoring with credit scores provided by these firms. Other integral parts of the credit scoring model and underwriting process include a verification of salary, an evaluation of the borrower's DTI (debt-to-income) which typically ranges from 3.0 to 3.5 times gross salary, and a review of the projected LTV of the loan. The underwriting process has largely been streamlined by the use of technology, although lenders continue to use credit analysts for decisions on loan applications that were initially rejected and are subject to further review. For loans with LTVs that exceed the acceptable limit, originators typically require mortgage insurance.

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Mortgage Indemnity Guarantee

Mortgage indemnity guarantee (MIG) insurance policies are used by UK mortgage lenders to reduce their exposure to loans with above-average LTVs. Currently, lenders have primarily used captive MIG insurers for these policies. A MIG policy effectively reduces a lender's total exposure, but does not eliminate exposure entirely. MIG policies typically protect lenders for initial losses to a specified LTV amount (i.e., usually 75% to 80%). If sale proceeds following default fall short of this amount, the lender will experience a loss.

UK MIG providers experienced significant losses in the early 1990s following a downturn in UK property prices and a spike in borrower defaults. As a result, MIG policies now frequently include provisions that limit total payouts (both in terms of expenses and total amount), restrictions on which mortgages may be covered by MIG, and various other limitations. RMBS investors should be aware that MIG can be used to reduce the total losses in a transaction but also the circumstances when a mortgage insurer can deny claims (e.g., for loans that do not meet specified underwriting criteria) as well as the insurer's historical record of paying claims. Furthermore, a distinction should be made for insurance policies which provide timely cash cover versus payment upon resale of the property.

UK Mortgage Product

The intense competition among UK lenders has left most UK borrowers well informed of their various mortgage options, as evidenced by the rise in refinancing by product "switchers". Today, borrowers demand flexibility and a variety of new mortgage features, including additional financial services, a range of repayment options, and a competitive mortgage rate.

UK mortgage lenders currently provide borrowers with a broad selection of mortgage products, including interest-only mortgages, deferred interest mortgages, hybrid products (i.e., fixed-rate over an initial period, reverting to floating rate) and the increasingly popular flexible mortgage (Charts 6 and 7). Despite the growth in new product types, UK mortgages typically have a number of common variables, including a term of 25 to 40 years, a floating interest rate, full amortisation over the life of the loan, and a first charge (i.e., lien) on the property. A mortgage's interest rate (the standard variable rate, or SVR) is set at the discretion of the lender (e.g., as in Australian market). Below, we further define the flexible mortgages and interest-only products available from most UK mortgage lenders.

Focus on "dual pricing"

In the past year, the UK financial press has focused its attention on the practice of dual pricing by UK mortgage lenders. Under a dual pricing scheme, some lenders offered new customers a lower standard variable rate but kept existing customers at a higher rate. Some borrowers complained that the practice was unfair, and following the UK Financial Ombudsman's decision in January 2002, banks that practiced dual pricing were required to refund those borrowers who had complained.

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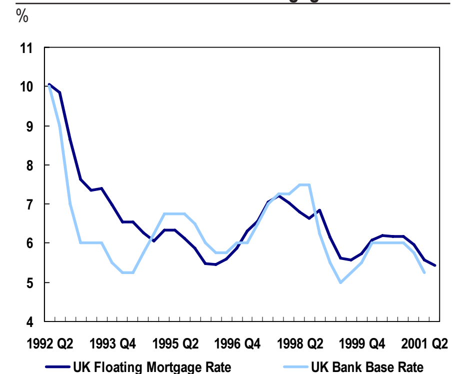
While separately determined by each lender, the SVR is closely linked to the UK bank base rate (Chart 5). The Bank of England's Monetary Policy Committee determines the bank base rate (indirectly via changes to its minimum lending rate to commercial banks) at its monthly meetings. Changes to the bank base rate are largely designed to address issues in the UK economy and inflation in particular. For most UK mortgage products, the SVR is set as some margin above the bank base rate, but the SVR does not necessarily track the bank base rate. More recently, UK lenders are offering "tracker mortgages" which are based on a specified margin above the UK bank base rate and thus changes with movements in the bank base rate.

Chart 5
UK Bank Base Rate vs. UK Mortgage Rate



Source: Bloomberg, Survey of Mortgage Lenders.

Flexible Mortgages

Flexible mortgages were first introduced in the UK from Australia in the mid-1990s, and have proven extremely popular with consumers. For many UK lenders, flexible mortgages represent a large percentage of new mortgage origination. A flexible mortgage's repayment structure provides for full-amortisation of the principal over the life of the loan. However, the core feature of a flexible mortgage is a borrower's ability to prepay and subsequently redraw principal without incurring a penalty. Today, virtually all the major lenders offer flexible mortgage products, although the degree of "flexibility" varies.

Flexible mortgage prepayments are applied to reduce the outstanding principal balance on the mortgage and provide borrowers with a means of decreasing future monthly payments and/or reducing the mortgage's average life. Most lenders also permit "payment holidays", enabling a borrower to underpay or even temporarily suspend monthly repayments (with certain restrictions on the timing, length, and frequency of such non-payment periods.) The terms of most UK flexible mortgages permit borrowers to redraw principal up to either the scheduled principal balance of the mortgage or a maximum LTV based on the value of the property. Depending on the lender, this feature is subject to certain conditions (i.e., minimum redraw amounts or timing constraints). Some flexible mortgages are linked with the borrower's current account or savings account held at the mortgage lender, so that a mortgage's outstanding principal amount is reduced by the amount on deposit in the current account (i.e., the current account implicitly earns the mortgage rate on its balance).

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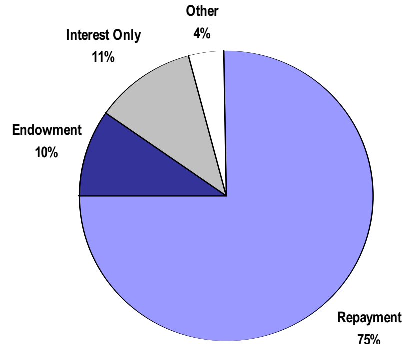
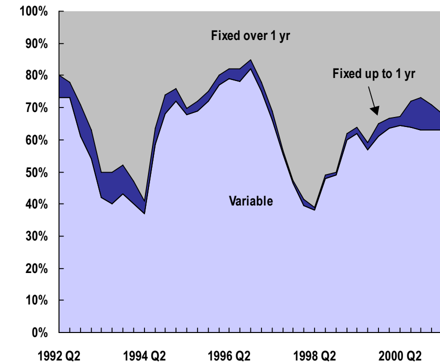
Chart 6
UK Mortgages by Repayment Type
Gross advances as of the fourth quarter of 2001



Source: Council of Mortgage Lenders.

Repayment mortgage: An amortising mortgage.
Endowment mortgage: Interest is repaid monthly while principal is paid to a savings or investment vehicle for a bullet repayment at maturity.
Interest-only mortgage: Interest is repaid monthly, and principal is paid from other funds or the home is refinanced at maturity.
Other includes PEP and pension loans.

Chart 7
Fixed versus Floating Rate Mortgages
(%)



Source: Council of Mortgage Lenders.

Interest-only Mortgages

In an interest-only mortgage, principal is repaid as a bullet at the mortgage's maturity. The borrower pays the interest cost to the lender throughout the life of the mortgage, while simultaneously making contributions to a savings vehicle that will ultimately make the bullet payment. The savings vehicle is usually held at the lending institution, but not always. A range of savings vehicles has been used over time (endowment policies used in so-called "endowment mortgages", pension plans, tax-exempt savings accounts, etc.).

Reverse Mortgages

A reverse mortgage or "equity release" mortgage is a first lien mortgage secured by a property. This type of mortgage is designed for older homeowners who do not have steady income and want to access the equity in their homes. Interest on a reverse mortgage accrues at a fixed rate and the loan is typically repaid when the borrower passes away or moves into long-term care (i.e., the house is sold and the proceeds are used to repay the loan). There is a maximum LTV allowed for reverse mortgages (e.g., approximately 50%) and borrowers must reach a certain minimum age to apply. Norwich Union Equity Release Limited completed the second reverse mortgage RMBS transaction (Equity Release Funding No. 1 plc) in March 2001. The analysis of a reverse mortgage RMBS transaction focuses on actuarial methods (i.e., mortality tables) to estimate when an originator will receive the proceeds from a home sale.

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Geographical Distribution

UK mortgage portfolios tend to be geographically diverse, with a higher percentage of loans originated from London and Southeast England (the most densely populated part of the UK). Homes in this area tend to be more expensive than the rest of the UK and the region has actually seen home prices accelerate at a more rapid rate than the rest of the country, particularly Greater London. That said, this region is the economic center of the UK where the most employment opportunities exist, and it is also the most liquid UK property market. Table 3 provides a comparison of the mortgage products available in various countries.

Table 3
Comparison of underlying mortgage collateral

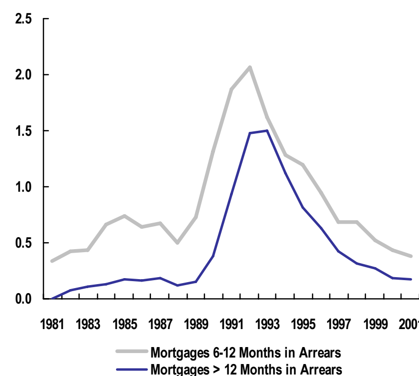
	Australia	United Kingdom	Netherlands	Italy
Priority	First lien	First lien	First lien	First lien
Mortgage Cash Flow Structure	Mostly amortising	Mostly amortising	Mostly bullets	Mostly amortising
Average balance (US$)	$55,000-$70,000	$75,000-$80,000	$95,000-$120,000	$60,000
Fixed / Floating	Fixed and Float	Fixed and Float	Fixed and Float	Mostly Floating
Average LTV*	65-85%	70-90%	85-100+%	55-65%
Prepayment penalties	Yes (*fixed only*)	Yes (*fixed only*)	Yes	Yes
Payment frequency	Monthly**	Monthly**	Monthly	Mostly semi-annual
Tax deductible interest	No	No	Yes	No
CPR speeds	20-24%	18-20%	7-10%	10-15%
Mortgage Insurance	Yes. Loan-by-loan and pool insurance	Some. Mortgage Insurance Guarantee (MIG)	No	No

* At mortgage origination.
** Payment holidays allowed for some mortgage types.

Credit Performance

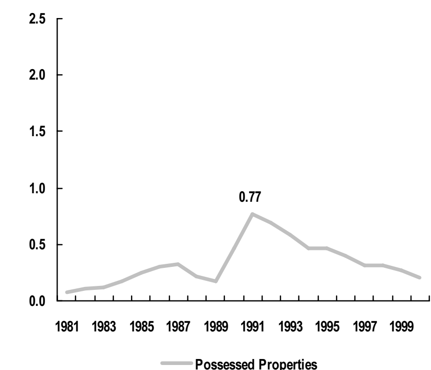
The Council of Mortgage Lenders provides statistics for UK mortgages that provide a reliable indication of the overall health of the market. Arrears peaked in the early 1990s – a critical stress period in the history of the UK mortgage market characterised by rising interest rates, falling home prices, and rising unemployment (Chart 8). Since that time, arrears have fallen steadily – due in part to decreasing mortgage rates, improved underwriting, and centralised servicing by UK lenders.

Chart 8
UK Mortgage Arrears Performance
(% of Total Mortgages Outstanding)



Source: Council of Mortgage Lenders.

Chart 9
UK Mortgage Repossessions
(% of Total Mortgages Outstanding)



Source: Council of Mortgage Lenders.

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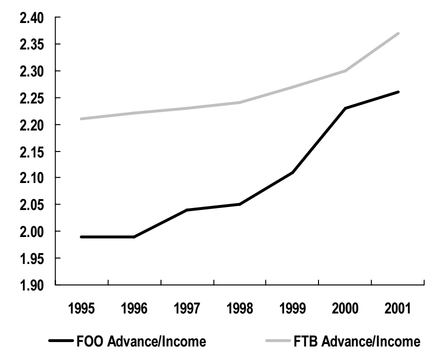
Repossessions

UK mortgage repossessions peaked at 0.77% of mortgages outstanding in 1991 (Chart 9). Most UK lenders seek to avoid the legal costs and other expenses of taking possession of a property. For seriously overdue accounts, lenders attempt to negotiate new repayment terms, such as reducing monthly payments by extending the loan. If these negotiations are unsuccessful, a lender will begin legal proceedings to repossess the property. This legal process is typically completed in nine to twelve months. Repossessions have steadily declined since their peak in the early 1990s. We attribute the decline to several factors, including better underwriting, improved servicing, a consistent rise in UK property prices, and lower mortgage rates during this period. First, centralised mortgage servicing and improved technology together allow lenders to identify and monitor accounts with problems at a very early stage. Lenders can thus prevent accounts from becoming seriously delinquent and extract more value from late borrowers. Perhaps more importantly, rising home prices have enabled seriously delinquent borrowers to sell homes without any loss and avoid repossession. Finally, although the size of mortgage advances have increased relative to borrower earnings (Chart 10), lower mortgage rates over this period have made all mortgages more affordable for borrowers.

Chart 10
Mortgage Advance divided by Borrower Earnings
Multiple of earnings



FOO: Former owner occupier
FTB: First-time buyer
Source: Council of Mortgage Lenders.

Rating agencies have become increasingly comfortable with the credit risk and the underlying data used to build rating models and stress tests for the UK mortgage market. The significant amounts of historical data for defaults and repossession in the market, coupled with improved underwriting and arrears management techniques, enabled the rating agencies to revise their foreclosure and recovery assumptions for UK mortgages (Table 4).

Table 4
S&P Foreclosure Frequency and Market Value Decline Assumptions

Rating	Base Foreclosure Frequency	Market Value Declines (South)	Market Value Decline (North)
AAA	12%	47%	25%
AA	8%	40%	22%
A	6%	35%	19%
BBB	4%	30%	16%

Source: S&P.

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UK Economic Performance

The strong credit performance of the UK mortgage market discussed above was again evident last year and can partly be attributed to the resilience of the UK economy throughout the global recession. 2001 saw the global economy slow down significantly, but the UK managed to outperform the rest of the G7 (i.e., the seven largest global industrial economies). Indeed, although the manufacturing sector weakened to recession levels, the service sector remained buoyant, keeping the economy as a whole growing at a near-trend like pace. Strong consumer spending drove growth and this spending was partly fueled by increased debt. Low unemployment, a buoyant housing market, and a series of pre-emptive interest rate cuts by the Bank of England drove real rates to record lows and kept consumer confidence at cyclical highs. Home sales boomed, lifting housing prices significantly. The resulting wealth effects partially fueled a boom in consumer spending not seen since the late 1980s, offsetting a sharp drop in net exports that hammered UK manufacturers.

Looking ahead, JPMorgan expects the global economy to recover strongly this year, and with consumer demand showing no signs of slowing, economic growth in the UK is likely to continue. Inflationary pressure, although muted at present, is likely to build in the second half of this year as the recovery intensifies. Indeed, there is a risk that RPIX (retail price index excluding mortgage interest) inflation could end the year at 3%, reflecting an unwinding of the sterling's past strength, continued upward pressure on core service sector prices, and a tight labour market. We do not envisage these trends reversing during 2002. In such an environment, interest rates are unlikely to remain at their current level – a 38-year low. The Bank of England will likely begin to take back some of last year's easing in 2002. However, the anticipated monetary tightening should be relatively modest, with rates ending the year at 5% (See JPMorgan's *World Financial Markets,* April 17, 2002, Daniel Gabay).

UK Prepayment Performance

In recent years, a number of factors have combined to increase UK mortgage prepayments, including historically low mortgage rates, the introduction of flexible mortgage products, increased competition among mortgage lenders, and rapidly rising home prices. Chart 11 shows that CPR has moved from 10% in 1995 to nearly 18% currently based on the combination of these factors.

The constant prepayment rate (CPR) is an annualised measure of prepayments for a mortgage pool. Importantly, the UK CPR measure includes both principal amortisation payments and "unscheduled" mortgage prepayments, which is different from standard measures in other markets that only include unscheduled prepayments. The bulk of prepayments is unscheduled, so that a CPR of 22% would typically be composed of 21% unscheduled and 1% of scheduled amortisation payments.

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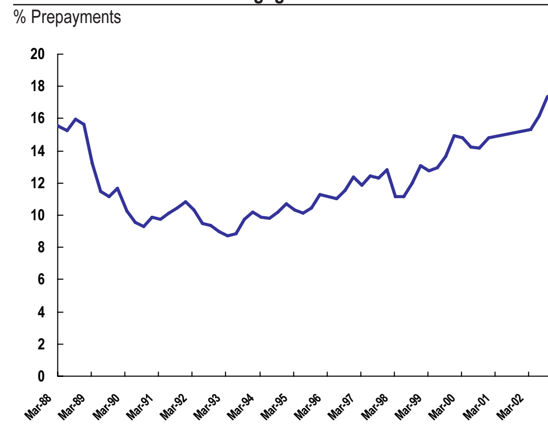
Chart 11
Historic CPR for all UK Mortgages



Source: Council of Mortgage Lenders.

Unscheduled prepayments occur when a borrower makes a payment larger than that required by the mortgage. UK borrowers may make "partial prepayments", or monthly payments larger than those required by the mortgage for a variety of reasons (i.e., typically to take advantage of flexible mortgage product features or to pay off a mortgage more quickly). Borrowers may also make "full prepayments" as the result of the sale of the home (i.e., a borrower moves), a default (i.e., the house is liquidated to repay the mortgage lender) or for voluntary reasons (i.e., refinancing to a lower rate mortgage or using an inheritance or a salary bonus to pay off the mortgage).

The prepayment rate for UK mortgages is important to master trust investors in that it partly determines the length of the accumulation period required to create a soft bullet payment. The minimum required accumulation period for a bullet payment also depends on the size of the bullet payment relative to the size of the mortgage balance in the trust.

Factors driving Mortgage Prepayments

A variety of factors will affect the prepayment rates of UK mortgage loans. Below, we list some of the more significant of these variables:

- *Interest rates*. A borrower typically has a strong financial incentive to refinance a mortgage as mortgage rates decline. Fixed rate borrowers have the most obvious financial incentive to refinance when rates decrease. In the UK, borrowers with floating rate loans may also seek to refinance when mortgage rates drop to lock in low fixed rates. UK mortgage lenders once used hefty prepayment penalties to reduce prepayments, requiring a borrower to pay a “mark-to-market” fee (i.e., the financial cost to the lender of the refinancing) to switch to a mortgage with lower rates. However, competition among lenders has frequently made it difficult to include a “mark-to-market” prepayment penalty. Today, many UK lenders allow a certain percentage (e.g., up to ten percent) of a fixed rate mortgage balance to be prepaid annually without penalty.
- *Home prices*. All else being equal, rising home prices lead to higher property turnover among homeowners. When a home is sold, a full mortgage prepayment occurs, since existing mortgages are usually not transferable to new properties. UK house prices have increased steadily since 1994 and have in turn led to higher CPRs (refer to Charts 4 and 11).

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- *Tax incentives*. The UK government no longer provides tax incentives that permit borrowers to deduct mortgage interest paid from taxable income, since this scheme (MIRAS, or Mortgage Interest Relief at Source) was abolished in 2000. There has not been a noticeable rise in UK CPR as a result of the removal of MIRAS. UK stamp duty is a one time tax charge applied to the purchase of homes worth over £250,000, and ranges from 3% to 5% of the assessed value (Table 5). The UK stamp duty discourages borrowers from "trading up" for more expensive homes and has a slight dampening effect on prepayments.

Table 5

UK Stamp Duty

Property value	Stamp duty
>£60,000 and <£250,000	3%
>£250,000 and <£500,000	4%
>£500,000	5%

- *Mortgage products and features*. The introduction of new mortgage products to the UK market has increased prepayments as product "switchers" take advantage of new mortgage types (i.e., flexible mortgage). Significant prepayment penalties decrease prepayment speeds. In the UK, major mortgage lenders typically allow up to 10% prepayments on loans during the fixed rate period of their lives and no penalties for floating rate mortgages. Intense negative media scrutiny and increased competition among lenders have led to the decline of penalties up to this 10% threshold.
- *Mortgage competition*. The intense competition in the UK has also increased prepayments, as competitive mortgage "teaser" rates lead borrowers to refinance with different lenders. Mortgage distribution channels can also play a role in prepayments as the active UK mortgage broker market has raised borrower awareness of various opportunities to refinance.

Structure and Legal Issues

Today, UK RMBS use a senior/subordinate structure with credit enhancement provided from subordination, excess spread, and often mortgage indemnity guarantee insurance. The master trust is the most significant recent structural development in UK RMBS, and was used by Abbey National in 2000. The master trust offers important advantages for the UK's mortgage-backed issuers and is currently being used by Abbey National, Northern Rock, and the Bank of Scotland (now part of HBOS plc). Below, we list some of the key advantages and disadvantages of the master trust:

- **Creation of bullet-maturity securities**. The master trust creates tranches with bullet maturities using overcollateralisation (seller's interest represents between 20% and 60% of the trust mortgage balance) to create the prepayment leverage required for a bullet payment. The structure is broadly similar to that used in Credit Card ABS. A wider investor base for soft bullet tranches helps achieve tighter spreads than pass-through securities due to "cleaner" principal cash flows. Cheaper currency swaps also allow issuers to create dollar denominated (typically SEC-registered) tranches and broad international distribution.
- **Efficient treatment of redraws in flexible mortgages.** The seller's interest in a master trust efficiently absorbs fluctuations in the trust balance due to redraws, which would otherwise require a redraw facility for liquidity purposes. The minimum seller's share is also used to absorb set-off risk

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that may arise in the bankruptcy of the originator. Set-off risk refers to the possibility that a lender may go bankrupt and borrower deposits, which are not insured as they are in the US, will be lost. Borrowers with deposits at a bankrupt financial institution may be able to "set off" deposit losses versus their outstanding mortgage.

- **The ability to reduce subordination levels.** Once senior notes have been paid via a bullet, the subordinate tranches of that series may be repaid even before subsequent series' *senior* notes are repaid. This dynamic effectively reduces the cost of the transaction to the issuer. In pass-through securities, the subordinate tranches must typically remain outstanding until subordination levels meet rating agency approval.

However, the master trust is not suitable for all issuers. The major drawbacks below are among the reasons that Australian RMBS issuers have not yet used the master trust structure. These drawbacks include:

- **Overcollateralisation.** The trust requires significant overcollateralisation in order to create bullet maturity payments from prepayments. For example, Abbey National currently has approximately £18 billion in mortgages in its master trust, but only £12 billion of securities issued. Many lenders may not wish to commit such a sizeable portion of their mortgage book to a master trust, since no capital relief is provided on the seller's share of the trust balance. The large seller's share in a mortgage master trust is therefore not optimal for all banks from a capital efficiency perspective.
- **Mortgage substitution.** The master trust requires that the issuer be capable of generating significant new lending in the future, and some lenders cannot generate the amount of new mortgages required during a substitution period.

Master trust structure

For investors familiar with the mechanics of a Credit Card ABS master trust structure, the master trust used in UK RMBS uses similar technology to create a soft bullet repayment profile. Collections on the mortgage trust balance are split between interest charges and principal repayments. Interest income is allocated on a pro rata basis between the seller's interest and the investor's interest. The allocation of principal collections depends on the cash flow stages of the notes.

In a master trust, the total amount of mortgage collateral purchased by the trust exceeds the amount of RMBS issued. The difference between the amount of notes issued and the trust collateral balance represents the seller's interest, which is subject to a minimum seller interest percentage (e.g., 4%)[1]. Historically, the seller's interest on master trust transactions has been significantly larger, ranging from 15% to 65% depending on total issuance from the trust.

Trust size and notes outstanding

Principal repayments may be used to 1) amortise pass-through notes or accumulate principal for a bullet repayment, 2) reduce the size of the seller's interest and the trust balance (subject to both a minimum covenanted trust size and a minimum seller's interest), 3) purchase new mortgage receivables from

1. Some master trusts structures also issue BB notes backed by excess spread, which we exclude in this definition of seller's interest.

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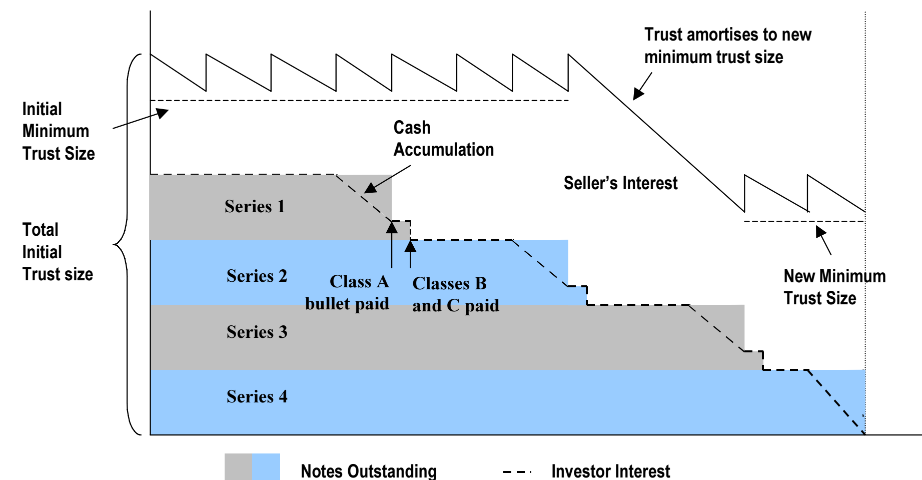
the seller during the revolving period (and increase the size of the seller's interest). Note that the size of the trust may grow if the seller chooses to add new receivables to the trust.

If mortgage principal payments are used to purchase additional mortgage receivables, all new mortgages added to the trust are subject to certain criteria (e.g., arrears no greater than one month, maximum LTV, etc.). In order for substitution to continue, certain other criteria relating to the trust must also be met (e.g., maximum percentage of the trust principal balance in arrears, no draw down of the reserve fund, etc.).

Cash accumulation for soft bullets

As discussed above, UK CPR rates are currently 18-20% on an annual basis. Soft bullet payments are made using the significant "prepayment leverage" (i.e., all the principal prepayments of a large mortgage portfolio are used to pay a significantly smaller bullet note) of the master trust. In anticipation of notes becoming due, principal payments are accumulated for the purpose of creating a bullet repayment for that series (Chart 12). For example, the principal payments on a trust's $15 billion mortgage portfolio may be collected over an accumulation period to make a single bullet payment of US$1 billion. A $15 billion mortgage portfolio with a CPR of 20% can thus make $3 billion ($15 billion times 20%) in bullet note payments per year, or a single US$1 billion payment every 4 months. An accumulation period can be extremely short due to the significant prepayment leverage of the master trust and current CPR levels on UK mortgages. The accumulation period is typically the greater of 6 months and the estimated time required to make a bullet payment based on a 12 month rolling average CPR.

Chart 12
Creation of bullet repayment from mortgage collateral



Source: JPMS.

- During the revolving period, substitution occurs to maintain the trust size above specified minimum trust size limits.
- During cash accumulation periods, all principal payments go the investor interest and are paid to a cash account for a bullet payment.
- It is anticipated that the size of the trust will increase if additional series of notes are issued.

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What if CPR declines significantly?

If the principal payment rate drops significantly, both the reserve fund and the liquidity facility may be used to make bullet repayments on the Series A notes on the scheduled payment date. If principal payments during the accumulation period are insufficient to make a bullet payment on the scheduled payment date, the bullet accumulation period is extended to the legal final maturity date of the Series A notes (which is typically two years after the scheduled payment date). Rating agencies stress principal payment rates down to 4-5% CPR and find that a bullet repayment can still be made by the legal final maturity date.

Asset performance triggers

- Principal deficiency on the AAA series.

If losses on the pool are significant enough to create a principal deficiency on the AAA principal deficiency ledger, the trust will begin to pay all principal (pro rata between the investor's and seller's interest) on the outstanding AAA notes until repaid. Principal deficiency ledgers exist for each rating category of notes (AAA, AA and BBB). As losses on the mortgage portfolio are recognised, they are recorded on each principal deficiency ledger - beginning with the lowest rated notes and moving up until losses reach the AAA ledger.

Non-asset trigger events

- Originator insolvency.
- Servicing of the portfolio is interrupted and a new servicer is not appointed.
- The trust mortgage balance declines below a minimum specified level.
- Minimum seller's interest falls below a specified level.

The events above are described as non-asset trigger events, and will result in a change in the principal priority of payments. If a non-asset trigger is breached, principal payments are made to the investor's interest *in priority* to the seller's interest until repaid in full. Furthermore, AAA rated notes receive principal payments in sequential order (based on their scheduled redemption dates), rather than pari passu across notes with different scheduled redemption dates. Subsequently, Class B series receive principal payments in sequential order until fully repaid and finally the Class C series are repaid in sequential order.

Additional series

A key structural feature of the master trust is the ability to issue subsequent series of notes backed by the same portfolio of mortgages in the trust. These notes rank pari passu with existing notes, but may only be issued if they will not negatively impact the ratings of outstanding notes:

- No new series may be issued if an outstanding principal deficiency exists on any of the notes.
- Principal payments to the subordinate Class B and C notes may be made ahead of a subsequent series of Class A notes provided that certain conditions

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are met. For example, the reserve fund must be fully replenished if drawn upon and the principal balance of loans 3 or more months in arrears must be less than 5%.

- Subordinate tranches will continue to receive principal payments (even in the case that a subsequent Class A Series bullet accumulation period has begun), limiting any extension of the average lives of the Class B and C notes.

Credit Enhancement

Credit enhancement in UK RMBS transactions comes from a combination of excess spread, a reserve fund and subordination. Excess spread can range from 15 to 50 bps, and will vary over the life of the transaction. Initially, this excess spread is used to fund the reserve account to its required size (typically between 1.3% and 2.0% of the trust's mortgage balance). Finally, subordinate tranches (total between 6% and 8% of notes issued) supporting the AAA rated tranche. To put this credit enhancement in perspective, we emphasise that losses on prime mortgages in recent years have been extremely low (less than 5 bps for established master trusts). Even during the severe market stress of the early 1990s, repossessions (which do not include recoveries) peaked at 0.77% of mortgage balances.

Legal Issues

Like many international RMBS transactions (Australia, Netherlands, etc.), UK mortgage originators use what is known as “equitable assignment” to transfer the rights of the mortgage portfolio to the mortgage trustee. In an equitable assignment, the mortgage originator transfers the mortgage assets to the mortgage trustee but the trustee does not notify each borrower of the sale and does not re-register the mortgage at the land registry (i.e., the required mechanism for perfecting legal title to the mortgage). However, the originator extends the power of attorney to a mortgage trustee, which grants the right to exercise the powers of the legal owner of the mortgages (e.g., interest rate resets, mortgage enforcement). In order for rating agencies to be comfortable with equitable assignment, the occurrence of certain events requires immediate (e.g., within a specified time period of 5 days) borrower notification and legal title transfer. These events include the downgrade of the originator below a certain rating, the termination of the originator’s servicing role, certain changes to English law, and other events outlined in each transaction’s offering circular.

Relative Value

The UK RMBS market has historically been the largest sub-sector of the European securitisation market. Following the example of the Australian RMBS issuers, Abbey National accessed the global investor base in 2000 with the first SEC-registered dollar-denominated transaction backed by UK mortgages. Since that time, global issuance has become a dominant percentage of the largest UK issuers’ (e.g., Abbey National and Northern Rock) securitisation programmes. Over US$16 billion has been sold to international investors, and in 2002 we

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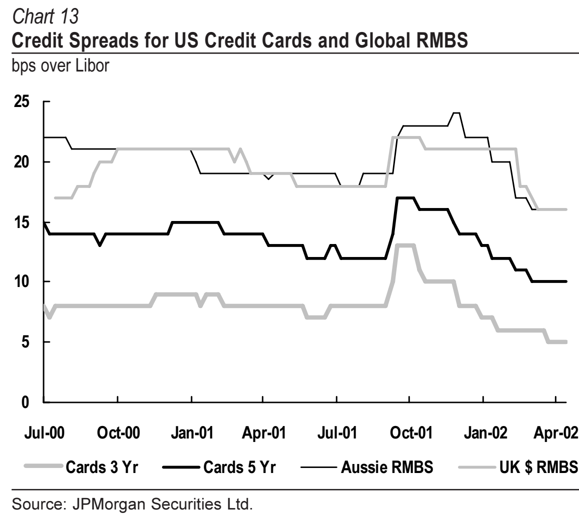
expect that UK global RMBS could be over US$10 billion. In terms of relative value, we highlight the current pricing differential between US Credit Card ABS and UK RMBS. With 3-year Credit Card ABS currently trading at Libor+5 and 3-year UK RMBS trading at Libor+16, UK global RMBS provide an 11bp pick-up to the Credit Card sector (Chart 13). The bullet principal payment profile of UK RMBS available via the master trust structure makes this comparison even more viable, since there is no spread "give up" for a pass-through. We emphasise that UK RMBS are secured against residential homes (versus unsecured Credit Card ABS) and also have significantly lower historical delinquencies and losses.

Chart 13
Credit Spreads for US Credit Cards and Global RMBS
bps over Libor



Source: JPMorgan Securities Ltd.

Investor base

While UK RMBS includes amortising structures, the bullet repayment profile has attracted a wide group of global investors that do not normally participate in pass-through or amortising structures. In addition, money market 2a7 tranches enable short-term money market investors to participate as well. Sterling-denominated UK RMBS have long been among the most liquid and active asset-backed paper in the European securitisation market. The growing supply of dollar-denominated paper will likely attract more investors and we expect to see similar liquidity in UK global RMBS.

Supply

The UK mortgage market is one of the largest global mortgage markets, and the top UK RMBS issuers are committed to using securitisation as a funding source. Global RMBS transactions have ranged between US$2 billion and US$3 billion (although these could become even larger) and typically have tranches of US$1 billion or larger (both 3 and 5 year WALs). The range of UK RMBS is extremely diverse and suited to meet various investors' requirements. Tranches have been structured in four major currencies, including sterling, dollar, euro and swiss francs and have included both fixed and floating tranches. Principal repayment is made either via soft bullets, straight pass-through of principal flows, or controlled amortisation. UK RMBS also offer lower rated tranches including AA, A, BBB and BB rated tranches and deals may be registered with the SEC or in eurobond format. We expect that UK RMBS supply will continue to grow since this range of product fulfills the demand of a broad group of investors.

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Diversification

The UK global RMBS sector offers international investors a diversification opportunity away from established US ABS sectors and away from US consumer credit. The outlook for the UK economy remains positive, and the UK economy's remarkably resilient performance through the global recession in 2001 provides evidence of the benefit of this diversification.

BIS risk weighting

UK RMBS are 50% BIS risk weighted (versus 100% for most ABS asset classes). According to the current proposals under the New Basel Accord (Basel 2), this risk weight advantage vis-a-vis other ABS will be eliminated in 2006 (when all AAA rated ABS qualify for a 20% risk weight). However, the risk weighting for tranches currently sold will enable buyers of UK RMBS to capture this advantage prior to the expected 2006 New Basel implementation.

Outlook

While the UK's top current issuers will likely continue to dominate the market, a key development in 2002 will be the entrance of new prime lenders to the securitisation arena. We anticipate that some of these new entrants will utilise a master trust, depending on the size of their mortgage portfolio and commitment to securitisation as a funding source. The global distribution of UK RMBS via SEC-registered tranches will further highlight the strong demand from a growing investor base, including new structured investment vehicles and Asian investors, for high quality ABS. We anticipate that the liquidity of the market will drive new demand – in particular from US investors – so that spreads should tighten further from current levels.

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