

VANDERBILT AVENUE ASSET MANAGEMENT, LLC

PLANNED AMORTIZATION CLASS BONDS

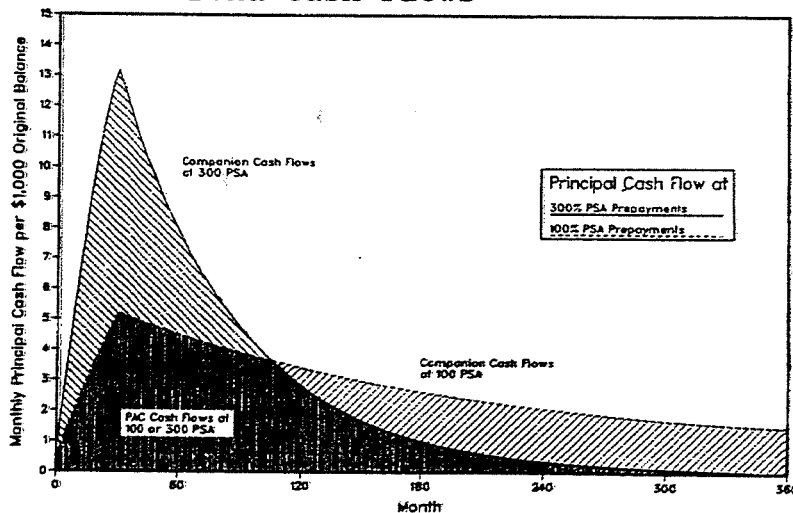
Planned Amortization Classes (PACs) of Collateralized Mortgage Obligations (CMO's) have been the single most successful innovation in the mortgage market in the past years. Today, almost all mortgage pass-through issuance is securitized into CMO's, and approximately half of the CMO balances are PACs. PACs have removed most of the prepayment uncertainty with mortgages, allowing more investors to participate in the mortgage sector, and improving the overall liquidity and understanding of mortgages. There are many investment advantages to PACs versus other mortgage instruments, but there are also pitfalls that must be recognized.

PAC STRUCTURING

The Planned Amortization Class (PAC) was created to address the problem of uncertain cash flow timing with typical mortgage security investments. Because of the mortgagee's option to prepay the mortgage in full or in part at any time, the mortgagor (ultimately the investor in mortgage-backed securities) cannot know for certain when, or even how much, cash flow will be received. A PAC bond, however, has a principal payment schedule that it will receive if interest rates (and therefore prepayments) remain within a reasonable range. This creates a bond that looks and behaves much more like a sinking fund corporate bond than a standard mortgage security.

The PAC bonds in a CMO are created by projecting the cash flow that would be generated from the collateral at two prepayment speeds, one below and one above the current expectations. The faster speed, (the upper band) provides the PAC bonds with call protection, while the lower band provides extension protection. In any month, the minimum cash flow provided by the collateral at either speed (the dark shaded area in Figure 1.) would be used to generate the PAC amortization schedule. In the early years, the upper band (e.g., 300 PSA in Figure 1.) would generate large cash flows, and the scheduled PAC principal payments are defined by the lower band (e.g., 100 PSA). In the late years, if the collateral has paid consistently at the upper band, there

Figure 1. PAC Bond Cash Flows



will be little principal left, generating little cash flow and the scheduled PAC principal payments are now defined by the upper band. This approach insures that there will be enough cash flow in every month, at either speed, to meet the amortization schedule. Usually, the PAC amortization schedule is divided up to create a series of bonds with different average lives.

SUPPORT TRANCHES

The cash flow uncertainty of the underlying collateral must be absorbed by the non-PAC, or support tranches, of the CMO, greatly magnifying their average life variability. Moderate changes in prepayments can cause their average life to shorten or lengthen dramatically, as the PAC schedule has priority to the cash flows. The higher (lower) the proportion of support tranches in a CMO structure, the greater (lesser) the average life stability provided to the PAC bonds.

PAC BAND DRIFT

The ranges, or PAC bands, created at issuance of the CMO do vary over time, as prepayments fluctuate from the pricing assumption, and the proportion of PAC's to non-PACS changes. The bands define a range of constant speeds which will preserve the PAC schedule, not a range over which prepayments can fluctuate month to month. This is a very subtle point, missed by many PAC investors. Depending on actual prepayment experience, the PAC bands will change over time.

- o Prepayments near the upper end of the range will retire the support bonds relatively more quickly, causing the lower band to drift upward. That is, faster prepayments on the lower outstanding balance of collateral will be necessary to meet the PAC schedule at slow prepayment speeds.
- o Prepayments near the lower end of the range will cause the upper band to drift upward, as a relatively larger proportion of support bonds is now outstanding, providing more cash flow to meet the PAC schedule.

When prepayments move outside the PAC bands, especially for a sustained period, then there can be no guarantee that the PAC amortization schedule can be met. In this situation, PACs begin to exhibit the characteristics of traditional mortgage securities.

- o Prepayments below the lower band may not generate sufficient cash flow to meet the PAC schedule, and the average lives of the PACs will lengthen.
- o If prepayment speeds move significantly higher than the upper band, the support bonds are paid down very quickly, perhaps completely, and the PAC bonds must bear more of the prepayment uncertainty. Even if the PAC schedule is not immediately violated, the reduction in the proportion of non-PACS to PACs will cause the lower band to drift upward quickly. The narrower band will greatly diminish the future cash flow stability of the PAC bond.

These relationships can be summarized as follows:

	When prepayments are:			
	Below Lower Band	At Lower End of Band	At Upper End of Band	Above Upper Band
Then the:				
Lower Band	Decreases	Increases Slightly	Increases	Increases
Upper Band	Increases	Increases	Increases Slightly	Decreases

INVESTMENT CHARACTERISTICS/APPLICATIONS

PACs offer numerous advantages to investors other than just reduced cash flow uncertainty.

- o Until the bond begins amortizing, the average life date will remain stable, and the bond can benefit from rolling down the yield curve, potentially adding incremental return.
- o The window of principal payments is relatively tight, usually about 2-3 years, so the reinvestment risk is limited, making them well suited to liability matching or immunization programs.
- o The narrow window also makes PACs easier to combine with interest rate swaps to create synthetic floating rate assets.
- o Different coupon rates can be easily created in a PAC structure, creating bonds with greater or lesser discounts to par to meet desired portfolio characteristics.

On the other hand, there are several potential pitfalls to investing in PACs that must be considered.

- o Longer maturity PACs, such as 10 to 15 year average life bonds, will have less certainty of meeting the PAC schedule. There is simply more time for prepayments to occur above the original bands, paying down the support tranches and reducing the call protection on the PAC bond. Longer PACs should, therefore, trade at wider nominal spreads to Treasuries than shorter average life PACs. In periods where near-term prepayments are expected to be very different (for example, much faster) than long-term projections, the PAC investor must evaluate the effect the near-term prepayments will have on the amount of support tranches outstanding over time.
- o The prepayment variability of the underlying collateral will impact the value of the PAC. PACs backed by GNMA pass-throughs should trade at tighter spreads to treasuries than PACs backed by FNMA or FHLMC collateral. A PAC backed by FHLMC 9% collateral is less valuable than

one backed by FHLMC 8%, as the prepayments on 9's will be more sensitive to changes in interest rates. The investor should convert the prepayment bands on PACs to interest rate changes that can be sustained before the PAC schedule is violated.

TRADING RELATIONSHIPS

Like other mortgage instruments, PACs do trade at established spreads to similar maturity treasury notes. Because of their greater call protection, however, they should trade at tighter spreads than standard mortgage pass-throughs of similar average lives, or sequential pay CMO bonds with no PAC protection. Recently, because the consistent steepness of the yield curve has facilitated CMO production, the supply of PACs has been large. This has created a situation where PAC spreads are very attractive relative to other mortgage instruments (see Figure 2.), and Mitchell Hutchins feels they offer better long-term value than mortgage pass-throughs. As the yield curve flattens, CMO production will slow down, and the relative supply of PACs will diminish. Their spreads should then narrow relative to alternative mortgage investments.

Figure 2. Spread History: FNMA Current Coupon vs. 10 Yr. PACs

