

# Comparison of Prepayment Models

For internal use only, not for redistribution.



## APPLIED FINANCIAL TECHNOLOGY

### GENERAL ISSUES

#### PERFORMANCE

Applied Financial's model shows unparalleled historical accuracy of predicted prepayments versus actual prepayments in all interest rate environments. Over the last cycle in interest rate movements when mortgage rates fluctuated in a 200 basis point range over a three year period of time, Applied Financial's model projections were very much in line with actual reported speeds. In effective durations calculated using Applied Financial's model were within a fraction of a year of actual price moves of mortgage-back securities.

#### TECHNOLOGY ARCHITECTURE

Applied Financial offers complete open architecture and access to underlying rules that are used to calculate prepayment factors. With Applied Financial you can review, modify or delete computational components. Applied Financial provides you the unlimited ability to establish your own proprietary prepayment opinion.

#### SERVICE

Applied Financial's client service extends from technical implementation to strategic consulting. Customer support is comprehensive and provided as part of your license agreement without additional cost. Applied Financial's support group will also fit the model to the user's particular data set, with no additional cost most of the time.

### DISTINGUISHING MODEL ISSUES

#### BURNOUT

Applied Financial features an advanced multi-population model. This function reflects changes in the population composition as a result of refinancings and thus we appropriately capture the changes in the shape of the response function due to exposure to refinancing opportunities.

#### DISCOUNT ORIGATION EFFECT

Deeply discounted origination pools are a self-selected population who do not intend to move. In the model the degree of housing turnover is suppressed for these populations.

#### PUBLICITY EFFECT

When interest rates approach and reach their historic lows, the refinancing behavior of all pools changes dramatically. Previously burnt-out pools come back to life, the overall response is heightened and borrowers tend to refinance for a smaller increment.

## PRIMARY COMPETITORS

### GENERAL ISSUES

#### PERFORMANCE

Projected speeds using competitor's models showed wide deviations from actual speeds in both high and low interest rate environments. Effective durations calculated using competitor's models were years off from price movements observed in the market. Some competitor's models state that they do not perform well for deep discount or high premium securities, which means that they do not perform well within the OAS framework for all mortgage-backed securities since all securities become high premium or deep discount on some simulation paths.

#### TECHNOLOGY ARCHITECTURE

Most models contain "black-box" variables with a few knobs to adjust to give you the impression that you can tune the model. The depth and degree of flexibility is a severe limitation in alternative systems.

#### SERVICE

Often competitor's customer support is a blend of model support and costly consulting advice.

### DISTINGUISHING MODEL ISSUES

#### BURNOUT

In most commercial models burnout is a function of accumulated exposure to the refinancing incentive. This approach leads to a dramatic over-projection of the response to consecutive small refinancing incentives and a dramatic under-projection of the response to a high consecutive refinancing incentive for burnt-out collateral.

#### DISCOUNT ORIGATION EFFECT

This is not available in other commercial models. The lack of this component leads to an over-projection of prepayment behavior for discount originated securities.

#### PUBLICITY EFFECT

This is only available through Applied Financial Technology.

## APPLIED FINANCIAL TECHNOLOGY

### GENERAL ISSUES

#### PROJECTING U.S. HOUSING SALES

Existing home sales directly effect the housing turnover component of prepayments. Applied Financial appropriately models the rate of housing sales in the U.S. as a function of interest rates.

#### COVERAGE

Applied Financial offers complete coverage: FNMA, FHLMC, GNMA I's and II's, 30/20/15/10 year plus 5 and 7 year balloons. Relocation loans, Whole Loans, Alt A, B & C loans. Home Equity Loans, Manufactured Housing Loans, ARMs including FNMA, FHLMC, GNMA) and Car Loans. This is a significant area of differentiation that demonstrates the flexibility of the Applied Financial model.

#### INPUTS TO MODEL

Applied Financial includes: WAC, Original Term, Age and Projected Coupon. When available: Loan Balance, LTV, Refinancing Type, Owner Occupancy, Documentation and Geography.

#### MODEL STABILITY

The Applied Financial model is battle-tested in both up and down interest rate environments. Please note comments under Performance. Our Research Department reviews market behavior and potential structural changes on a continuing basis and to date, changes to the model have not been necessary. We are so confident in our performance we have developed a JAVA-based tool that illustrates the historical vs. predicted prepayment behavior for any collateral type and time period.

#### MARKET IMPLIED PARAMETER SETS

In addition to providing parameter sets with the best predictive power, Applied Financial provides a system that solves for parameters that lead to the model behavior which is consistent with market-neutral securities pricing.

#### MODEL SIMULATION CAPABILITIES

Applied Financial offers the unique capability to solve for the parameters that lead to the behavior of our model that can duplicate the behavior of any third party model (for example, Bloomberg Consensus, dealer models, etc.).

#### MAJOR CLIENTS

Applied Financial is used by three of the Top Ten Wall Street Broker/ Dealers as well as by the top Super-Regionals for trading and investment decisions. Also used by Major Insurance Companies, Hedge Funds, Mortgage Servicers, Banks and Money Managers.

## PRIMARY COMPETITORS

### GENERAL ISSUES

#### PROJECTING U.S. HOUSING SALES:

Not addressed by alternative commercially available models.

#### COVERAGE

Competitive models lack coverage of Home Equity Loans, Manufactured Housing Loans, Alt A, B & C loans, 10 year loans and car loans. Other models lack comprehensive coverage for whole loans.

#### INPUTS TO MODEL

WAC, Original Term, Age, and Projected Coupon.

#### MODEL STABILITY

Most competitive models have performed quite poorly during recent interest rate movements. This led to significant system recalibration of some models in 1998. In effect, it leaves open the question of how the models will perform in extreme interest rate environments in the future. It is important to be very skeptical of a model that needs frequent parameter adjustments. In extreme cases there are competitors that change the parameters every year which leads one to question their predictive power.

#### MARKET IMPLIED PARAMETER SETS

This is only available through Applied Financial Technology.

#### MODEL SIMULATION CAPABILITIES

This is only available through Applied Financial Technology.



#### APPLIED FINANCIAL TECHNOLOGY

111 Pine Street, Suite 730  
San Francisco, California 94111  
415.989.9800 main  
415.989.9833 fax  
www.aftgo.com