SYLLABUS

AGEC 600: AGRICULTURAL FINANCE

Professor:  Timothy G. Baker, 590 Krannert -- Office: 494-4237
Home: 497-3252  Cell: 714-0426
e-mail: baker@purdue.edu

Secretary: Marcy Halsema, 591 Krannert -- Office: 494-4304

Objectives

The primary goal of AGEC 600 is to open the area of financial economics to students through reading, discussion, lectures, and homework. The course will include theoretical material but will emphasize potential research, extension, and business applications. Emphasis is placed on the financial management of firms without publicly traded equity capital\(^1\). Some specific objectives are for students to:

1. Develop greater knowledge data, publications, and research issues in agricultural finance.
2. Develop greater knowledge of the budgeting and analysis of capital investments.
3. Develop a sound understanding of the capital structure decisions of non-corporate firms.
4. Become acquainted with mathematical programming applications in finance, including models of risky choices and models of optimal debt financing and investment.

Prerequisite

Students are presumed to have a finance background comparable to AGEC 524 or MBA level finance. You are assumed to be familiar with net present value budgeting and should be familiar with financial statements and ratio analysis. We may be doing some mathematical programming. Thus, at least rudimentary knowledge of LP is needed. AGEC 552 is sufficient.

Grading and Exams

The course grade is based on homework, class participation, and an oral final exam. Because of diversity of backgrounds, the course grades will have a significant subjective component. Those of you with more background in economics and finance are expected to push yourselves further into theoretical areas and research methods. Completion of all homework assigned and a high degree of class attendance is necessary and sufficient for a grade of B or better. There will be an oral final exam with a list of potential questions provided in advance.

\(^1\) The phrase "firms without publicly traded equity" is long and awkward, but is in fact what I mean. Sometimes I will use "non-corporate firms" or "small businesses" as a shorter substitute.
AGEC 600: Summer 2009
Course Outline

1. Introduction
   A. Outline, Syllabus, schedule, course style
   B. What is Agricultural Finance and how does it differ from (Corporate) Finance?

2. U.S. Agricultural Credit Markets
   A. Government publications and Institutions
   B. Data and Research Issues

3. Investment under Certainty and Perfect Capital Markets
   A. Obligatory theory
   B. Separation theorem and NPV

4. Beyond Textbook/Undergraduate Capital Budgeting
   A. Introduction
      Importance in small business management
      Pretend assumption of certainty
   B. Term Structure of Interest Rates
   C. Time Value of Money: emphasizing continuous-time factors and growth
      D. part 1. NPV – discussion of various issues
         Meaning of Net Present Value -- PV of 'profit'
         Mathematical marginal NPV of another year
      D. part 2. More NPV issues
         Reinvestment rate underlying NPV
         Difficulties using NPV
         Constraints and indivisibility
         Project life differences
         Small business issues
         Cost of capital
         Pricing fixed resources
         Commodity vs. Differentiated Product investment
         Industry Specific Assets
   E. Meaning of Internal Rate of Return
      Mathematical solution to a polynomial
      Unrecovered balances approach
      Modifications of IRR (IRR is an 'average' rate of return)
      Practical issues
      Multiple sign changes
      Negative last period cash flow
      Cost Minimization situations
      Investment management returns
F. IRR vs. NPV
   NPV profiles
   'Later' cash flow pattern
   Larger investment
   Fisher's rate of return (cross-over rate)
   Reinvestment rate implied by using IRR
   Using IRR to get the same ranking as NPV

G. Inflation and Taxes
   TVM factors
   Inflation distortions in accounting
   A component-by-component look at distortions in investment NPV's
   Value Invariant Tax Policy
   Implications for small businesses

H. Inclusion vs. Exclusion of Financing Flows
   The problem
   Issues
   The correct approach
   The practical approach

I. Lease Financing
   What would cause a leasing market to exist?
   Discovering the interest rate implicit in a lease

J. Bid Models
   5 Principles of Capital Budgeting
   Examples of bid models
   Potential hazards of bid models

K. Questions of When to Invest
   It is seldom now or never
   The problem -- Is postponement/delay possible?
   Warning signs
   No practical general mathematical formulation
   Examples/cases
   Cost side constant, revenue side increasing
   Length of investment cycle (optimal replacement problems)

L. Uncertainty, NPV, and when to invest
   5. Risk -- (will be included on an as needed basis for the capital structure modeling)
      A. Technical Aspects of expected utility
      B. Efficiency
      C. Risk Adjusted Discount Rates
6. Optimal Capital Structure
   A. Leverage and MV Separation theorem
   B. Collins' Model
   C. Liquidity
   D. Contrast with the Corporate Finance Approach

7. Modeling Capital Structure (Mathematical Programming)
   A. Discrete Stochastic Programming
   B. Probability Modeling (Discrete and Continuous)
   C. Modeling Stochastic Processes
   D. Class DSP Model of Optimal Capital Structure
   E. Previous Applications

8. Farmland Investments, Prices, and Dynamics
   A. Income Capitalization and Bid Models
   B. Land Tenure, Efficient Pricing, Ag. Land in Portfolio Models
   C. Dynamic Land Price Models

9. Futures (possible topic)
   A. Description
   B. Pricing Theory

10. International Finance, cooperatives, insurance (possible topics)