EVOLUTION OF FINANCIAL ECONOMICS

A (RELATIVELY) BRIEF HISTORY OF FINANCE IDEAS

Most curricula in departments of economic include the history of economic thought. The rationale is that we understand current ideas better with perspectives on their evolution. The same benefits are likely to emerge from efforts to trace how the main concepts of financial management and financial economic have evolved. Historical perspectives are particularly useful in comprehending the new concepts and ideas that have emerged in rapid succession in recent years.

Review and analysis of financial history suggest five generalizations. One the new developments of each historical period and the creators of these developments were responding to the pressing economic. financial and sociopolitical problems of the period. Two financial thought has also responded to the maturation of financial markets. Internationalization and increased competition. Three the development and/or uses of new tools. New mathematical models. And new methodologies have facilitated the creation of theories to explain financial behavior. Four practice has reflected the new learning with varying time lags but has also stimulated the development of theory to understand explain and predict financial behavior. Five new ideas have built on the ideas provided by previous knowledge.

These propositions will be supported by the materials developed in the following eight sections.

I. An overview of the central ideas of finance.

II. Historical review of the impact of economic developments on the content of the finance field

III. The emergence of selected areas of finance

IV. The working capital management area in historical

V. Financial strategy and growth

VI. International finance

VII. The proliferation (explosion) of the literature of finance

VIII. Coping with the knowledge explosion

I. OVERVIEW OF THE CENTRAL IDEAS OF FINANCE

Finance ideas can be divided into eleven central areas:

1. Investment Decisions (Capital Budgeting)
2. The efficient Markets Hypothesis (EMH)
3. Portfolio Decisions (Gains to Diversification)
4. Risk and Return (Factor Models)
5. Pricing Derivative Securities (Option Pricing Theory)
6. Capital Structure, Dividend Decisions, Optimal Contractual Choice
7. Valuation and Growth Opportunities
8. International Finance
9. Agency, Auctions Games, Information, Reconstructing
10. Takeovers, Governance and Control
11. The Timing of Cash Inflows and Outflows (Short-Term Financial Management)

I. An overview of the central ideas of finance.

The central propositions related to these areas will be briefly stated as a basis for subsequent discussions.

1. Investment Decisions (Capital Budgeting). Fisher separation is the idea that investment decisions can be separated from considerations about individual preferences. If capital markets are perfect, managers maximize owners' wealth by investing until the rate of return is equal to the opportunity cost of capital. Individuals can delegate investment decisions to the managers of firms and the appropriate decision rule is

the same, independent of shareholders' time preferences for consumption. The investment rule is to undertake projects until the marginal rate of return equals the market-determined discount rate (the opportunity cost capital). Given a perfectly competitive capital market, the important Fisher separation concept applies as well to the fullest of traditional capital structure and related decisions (De-Angelo [23]).

2. The Efficient Markets Hypothesis (EMH). EMH holds that current prices reflect all available information. The no-arbitrage profit condition is also implied. Any two securities or portfolios with the same state-contingent payoff vectors must be priced identically. This is the single-price law of markets. If short selling is allowed, a second necessary condition for market equilibrium is the absence of any riskless arbitrage opportunity. Noise traders or uniformed investors are contrasted with in-formed investors, who trade information. Noise trading makes it possible for informed investors to earn a normal return on the information gathering (Kyle [66]. A second approximation to EMH adjusts to noise traders and the limited ability to arbitrage by rational investors to fully offset their activity.

3. Portfolio Decisions (Gains to Diversification). Diversification eliminates nonsystematic risk. Only systematic risk is priced. On a mean-variance-efficient frontier each investor picks a point for a particular degree of risk aversion; such portfolios will combine two assets: the risk-free asset and the common risk portfolio the market (M). Two-fund separation still holds in the absence of a risk-free asset by combining M with a zero beta portfolio.

4. Risk and Return (Factor Models). The trade off between risk and return has been emphasized in recent generations of finance textbooks. This central proposition of financial economic is based on the concept that risk-averse investors must be promised a higher nominal return to bear a higher risk. For broad classes of securities, solid evidence is consistent with this proposition; that is, historical returns on equities are higher than for straight bonds.

However, for more narrowly defined securities and portfolios less agreement is found on the identification of risk factors and other variables that appear to influence security returns. At the theoretical level, the law of one price, the arbitrage condition and the equilibrium condition all utilize liner pricing relationships. Security and portfolio expected returns are related to their sensitivities to pervasive factors, as formulated in factor models such as CAPM and APT. In empirical tests a wide range of variables have been used to explain returns.

5. Pricing Derivative Securities (Option Pricing Theory). Derivative securities are assets whose values are based on the values of other assets. Pricing derivatives is based on the principle that close substitutes have the same price. Calls, puts, swaps, futures, and forward contracts are examples of derivative securities whose payoffs are contingent on the values of other assets. Derivatives securities can be formed by the use of options such as calls and puts or by combining short and long positions in operations, in futures or forward contracts, or in combinations of other assets with differing degrees of perceived risk. Derivative securities provide opportunities for risk management (hedging) and spanning with new securities (financial engineering).

6. Capital Structure, Dividend Decisions, Optimal Contractual Choice. The key aspects of corporate finance involve financial structure and dividend policy for which Modigliani and Miller (M&M) developed irrelevance propositions. Departures from the M&M conditions give rise to many challenging corporate finance policy decision issues, including optimal contractual choice.

7. Valuation and Growth Opportunities Assets are valued by their appropriately discounted expected future cash flow distributions. If actions or decisions do not affect the probability distributions of the future cash flows, the capital structure and dividend irrelevance propositions follow. The related value additivity principle states that the value of the firm is equal to the sum of the values of its projects. When the idealized assumptions of pure and perfect markets are relaxed, capital structure and dividend policies can change the cost of capital and therefore the value of the firm. The relation between profitability rates and the cost of capital defines growth opportunities and is central in models for estimating the intrinsic value of firms. Some have suggested that capital structure issues should be combined with valuation. This should not be done, since valuation is more than simply relating expected cash flows to the relevant cost capital. Much broader issues of organization strategic planning and policies are required for valuation analysis.

8. International Finance. When activities in another region affect the index numbers used to convert nominal expected cash flows into real terms, the new perspective required is termed international finance. Because investors may not use the same price index in deflating their expected monetary returns, the standard aggregation, separation, and asset pricing results of portfolio theory may be affected.

Unanticipated changes in the relative values of currencies create foreign exchange risk for international transactions. Such exchange rate movements represent departures in some sense from the international parity conditions of the international Fisher effect, interest rate parity, and purchasing power parity.

9. Agency, Auctions, Games, Information, Re-contracting. When two or more persons or firms are involved in decisions and/or actions, divergent incentives and interests may develop. Mangers may take actions that are in their own interests but not those of other stakeholders. Asymmetric information may also influence actions by stakeholders. Contracting (for example, bond covenants) and monitoring costs are transactions costs arising from agency problems and asymmetric information. Contracting in a dynamic world inherently gives rise to pressures for recontracting as conditions and circumstances change. When realizations diverge from the expectations upon which contracts were based, individual parties may seek contracting revisions (e.g., recontracting and recognization following financial distress).

10. Takeovers, Governance, and Control. Takeovers are one of the mechanisms for motoring corporate governance and control. Changes in the economic (globalization of competition) and political environment (deregulation) require adjustments by firms to align to their environments more effectively. Changes in technology and management methods also require adjustment. Control changes may take place to accomplish the required changes. Takeovers may result from opportunities for reorganizing the operations or activities of firms or changing their product-market boundaries. Divergent control incentives may also give rise to takeovers.

11. The Timing of Cash Inflows and Outflows (Short-Term Financial Management). The movements of inflows and outflows represent another dimension of analysis of cash-flow behavior. Models in this area (historically called working capital management) are important because short-term financial management influences the liquidity, solvency, and value of organizations. Short-tem financial management decisions and activities must be integrated with longer-term investment and financing decisions. Advances in models in this are contribute to the maximization of firm value.

II. Historical Review

The background of these central areas of finance provides a useful road map for this historical review of the impact of economic developments on content of the finance field. An overview of the patterns is conveyed by Exhibit. 1. Developments in each of the time periods are briefly summarized.

A Brief History of Finance ideas and the related impact

Exhibit 1 Impact of Economic and Legislative Developments on the Finance Field through the 1960s:

Developments	Impacts
Turn of the 20th century	
▪ Consolidation movement	Capital structure Major financing episodes
1920s	
▪ Busts of industries	Financial structure
▪ Merges of round out marketing lines	Some planning and control
▪ High profit margins	Liquidity considerations
1930s	
▪ Severe economic recession	Errors of unsound financial structure
▪ Wave of reorganization and bankruptcy	Solvency and liquidity
▪ Securities Industry Acts of 1933, 1934, 1935 1938, 1939	Financial rehabilitation More information to investors
institutions	Restrictions on financial
Early 1950s	
▪ Rapid expansion	Emphasis on cash flows vs. profitability

- Reestablishment of monetary policy
- Apprehension of postwar recession

De-emphasis of financial ratio analysis

Use of internal financial management procedures: aging receivables, cash budget forecasts

Late 1950s-1960s

- Improved profit opportunities

Capital budgeting analysis of opportunities

- Increased pace of technological change

Cost of capital analysis to determine investment hurdles

- New industries

Planning and control increase profit growth

- Stock market premium on growth

Emphasis on major financial institutions and price level movements

- Large-scale computers
- Williams Act of 1968

A. The Turn of the 20th Century

The systematic study of financial management in the United States began at the turn of the 20th century. The emergence of the field was associated with the major consolidation movement in the United States responding to the development of national markets after completion of the cross-continental railroad

networks in the late 1880s. By the end of the merger movement of 1890-1905-305 major industrial combinations had been put together. In 78 of these industrial combinations, the resulting firm controlled half or more of the total output in the industry (Weston [129]). Financing these large enterprises raised important issues of capital structure.

Arthur Stone Dewing [24] wrote a study of the turn-of-the-century mergers and promotions. He observed a high failure rate. His analysis of the fundamental causes of failure indicated that a major contributing factor was overleveraging. (Shades of the 1980s – the more things change, the more they remain the same!) **Therefore, in his textbooks on the financial policy of corporations (beginning in 1920), Dewing [25] concluded that the choice of capital structure and decisions involved in major financing episodes were of great significance.** In Dewing view, dividend policy also had an impact on the liquidity and subsequent strength of the corporation. Dewing's subsequent textbooks in corporate finance set the pattern for what is now referred to as the traditional corporate finance approach**. Because the early consolidations involved large aggregates, the nature and terms of the financial contracts were matters of critical significance. As a result, traditional business finance included a heavy emphasis on institutional detail and description of financial instruments and contracts**.

B. The 1920s

In the 1920s, major industries began to develop or mature. Some of the most significant were the radio, chemical, automobile, and steel industries. Large-scale national advertising emerged. Marketing and distribution methods reflected the advances in communications and transportation. **Mergers were employed to round out marketing line. Profit margins were high, but the inventory recession and sharp price declines of 1920-1921 again emphasized the importance of financial structure.** Inventory price fluctuations and periodic financial stringency stimulated attention to liquidity considerations.

C. The 1930s

The **recession** that began in 1929 was unprecedented in its duration and severity. In the business field**, it caused a wave of financial reorganizations and bankruptcies. A scramble for liquidity took place. The public began to claim their deposits from the commercial banks. The banks in turn**

reduced their lines of credit. Forced inventory liquidations ensued. Prices declined, and the inventory liquidations did not provide sufficient funds to meet obligations. Bank runs and bankruptcies cascaded. The need for safe leverage and liquidity was again dramatized.

With the reduced rate of business activity, losses resulted. Fixed financial charges were especially burdensome. In the public utility holding company systems, financial leverage had been magnified through the pyramiding of layers of intermediate entities. **When operating revenue declined, the systems could not support the heavy burdens of financial charges, and devastating collapse of the far-flung systems followed.** Most railroads were able to cover current operating expenses, but debilitating deficits resulted from the overhang of heavy, fixed financial charges resulting from high debt ratios. **As a consequence, virtually the entire railroad industry went through reorganization. Again, leverage decisions had an important role.**

These events of the 1930s seemed to underline the importance of traditional business finance. The errors of unsound financial structure, particularly the consequences of heavy debt charges, were again demonstrated. The emphasis of traditional business finance on the analysis of financial structure and liquidity was again supported.

The financial distress of the 1930s resulted in major legislative enactments that increased federal regulation of the securities markets. The issuing and trading of securities became subject to monitoring by the Securities and Exchange Commission (SEC). Significant changes were made in the "rules of the game' to which financial managers and financial intermediaries were required to conform.

D. The 1940s

The 1940 were, of course, dominated by World War II and its immediate aftermath. All activity was subordinated and **directed to the war effort.** Many industries shifted to production for the defense effort**. The conduct of the war required specialized products without peacetime uses.** The specialized investments required to produce these goods required large outlays. The use of these facilities was of uncertain duration, with little or no application in the peacetime economy**. It was, therefore, necessary to finance such programs primarily from government resources. Financial officers of firms were involved in arranging the financing programs with government help.**

Expanded operations in wartime programs required additional plant and equipment, mainly financed by the government, but working capital requirements remind a challenge to financial managers**. In the period immediately after World War II, financing the expansion of capacity and of working capital required for the growth of sales of peacetime products assumed crucial proportions for private financial policy.**

E. Early 1950s

The early 1950s were years of rapid economic expansion but were clouded with the threat of a major postwar recession. Rising labor costs led to the substitution of capital equipment for labor. The rapid growth of firms coupled with a depressed equity market in the early 1950s and a tightening money market caused managers to place great emphasis on the conservation of cash**. Cash-flow management became critical to profitability and value maximization.** The orientation of financial management as the "outsider looking in " and the emphasis on financial management procedures and controls received increased attention. Cash budget forecasting developed. Internal managerial controls, such as aging receivables, analysis of purchases, and the application of inventory controls, were stressed. The activities of financial managers began to broaden the scope.

F. Late 1950s and the 1960s

By the late 1950s, profit opportunities in mature industries began to narrow. The limited profit opportunities in traditional industrial activity fostered development of the theory of capital budgeting. **With relatively tight money and a limited range of opportunities, management began to place increasing importance on careful assessment of resource allocation**. **The narrowing of the margin between prospective profitability and the cost of funds stimulated cost- of- capital analysis to determine appropriate investment hurdle rates**. The higher market valuations placed on differential cash flow growth encouraged the creation of new techniques of planning and control.

G. Late 1970s and the 1980s

The foregoing provides illustrations of the generalization that financial practice in each historical period was responding to the pressing problems of the day**. A review of the decade of the 1980s**

underscores how financial thought has responded to the maturation of financial markets to internationalization, and to increased competition.

The developments and their impacts summarized in Exhibit 2 reflect the changing environments evolving since the late 1970s. These developments can be summarized into the following categories.

1. **The Rise of International Competition.** The revolutions in transportation and communications have produced increasingly competitive world markets for many products. The completion of the transnational railroads in the U.S. in the 1880s resulted in a large common market that stimulated horizontal mergers and national firms. The emergence of world markets in the 1980s has created new number of large multinational enterprises. Europe's 1992 integration initiatives have stimulated another wave of mergers.

2. **Changing Technologies**. The pace of technological change has continued to accelerate, increasing competition between products and between their producers. Threats of losing markets and customers in an increasingly dynamic world have grown.

3. **Management Adjustments**. External environments have changed in many dimensions and increased in turbulence. As consequence, firms have had to readjust their management systems, their selection of products markets, their research and manufacturing methods, their methods of marketing, and their management of human resources. The challenge to finance has been to develop information flows that enable firms to anticipate changes and to have quick reaction responses to threats and opportunities. Strategy and strategic planning have developed to help firms more effectively realign to changing environments and the increased pace of competition from product changes and new management methods.

4. **Deregulation**. Deregulation has taken place in airlines, banking, the saving and loan industry, in other financial services, broadcasting, cable, communications, transportation, and oil and gas. The readjustments in these industries included mergers and acquisitions, which accounted for 37 percent of merger activity by value between 1981 and 1986.

5. **Fluctuating Exchange Rates**. Fluctuating exchange rates affect the prices of raw materials, the prices of goods sold, and prices of buying and selling foreign companies. Fluctuating exchange

rates require continuous readjustments in the selection of types and locations of production methods, marketing activities, and growth strategic including alliances, licensing, and takeovers.

6. **Innovations in Finance**. The increased use of computers and formal models plus "rocket scientist" applications of finance theory produced many models directly applied in financial practice. These innovations were reinforced by competitive pressures. Deregulation in the financial intermediation industries permitted greater freedom and flexibility in lending and investing activities, which encouraged an inflow of capital, resulting in excess capacity in financial services. Excess capacity placed pressure on profit margins and stimulated new types of activities in which the financial intermediaries possessed limited managerial experience or capabilities. Some new practices were highly speculative - in part because of perverse incentives created by government policies such as deposit insurance.

7. **Increased Use of Debt**. The long period of economic expansion during most of the 1980s encouraged financial managers to increase (book) debt ratios and to decrease interest coverage ratios. Jensen [55, 56] provided a conceptual justification for the use of debt in his free cash-flow theory. In below-investment-grade debt obligations ("junk bonds"). Their fluctuations in value created investor distress as well as opportunities.

8. **Change in Tax Policy**. Four major revisions in the tax laws were enacted during the 1980s, shifting the relative advantages of the use of debt and equity. The changes also stimulated new tax-planning strategies

   With the foregoing background, we can now turn to depicting some patterns in the flow of the history of financial thought.

Exhibit 2 Changes in Late 1970s through the 1980s

Economic Developments	**Impact on the Finance Field**
• Increased International competition • Changing technologies – pace of	• Increased importance of agency problems

innovation increased • Changing manufacturing methods – flexible manufacturing systems • Changed management of human resources – hierarchy to participative management • Fluctuating exchange rates – changing prices of buying and selling of goods and companies • Deregulation in financial services • Persistent U.S. government deficits, large balance of payments deficits – continuing uncertainty and fear of inflation and/or high interest rates • Frequent changes in tax laws • Increased power of relatively low cost personal computers • Weaknesses in governance and control systems exposed	• Increased pace of takeovers, acquisitions, and mergers • Rise of new forms of financing for small, and medium-sized firms, including highly leveraged transactions and high-yield securities (junk bonds) • Innovations in option pricing theory and the creation of many forms of financial derivatives • Increased use of futures, forward and swap markets • Increased use of spreadsheet and computer-assisted analysis • New financial products and innovations in financial services – the explosion of the financial engineering industry • Development of short-term financial models and integration into general finance theory as well as more sophisticated computer-assisted short-term financial management analysis

III) The Emergence of Selected Areas of Finance

A panorama is presented in Exhibit 3 that provide is presented in Exhibit 3 that provides a time line of the introduction of new concepts and ideas in finance during the last century:

The topics covered in the present section are:

A. Investment Decisions and Valuation

B. Capital Structure Theory

C. Factor Models – CAPM and APT

D. Derivative Securities

E. Games and Information

F. Takeovers and Corporate Control

G. Financial Distress

Full sections are then developed on Short-Term Financial Management. Financial Strategy and Growth, and International Finance before the paper concludes with discussions of The Literature of Finance and Coping with the Knowledge Explosion.

Exhibit 3 Emergence of Major ideas in Finance by Initial Year of Decade

1930	**1940**	**1950**	**1960**	**1970**	**1980**	**1990**
Interest Rates and Investment Decisions Fisher 1930	Financial Markets and Business Finance: Jacob & Saulnier 1947	Capital Budgeting: Dean 1951	Dividend Policy Miller & Modigliani 1961	Efficient Capital Markets: Fama 1970, 1991	*Corporate Control and Restructuring :* Jensen & Ruback 1983: Weston & Chung 1983; Chung & Weston 1982	*Risk Management* Smith, Smithson & Wilford 1990
Valuation Theory Williams 1938		Working Capital Management: Baumol 1952; Stone 1972; Smith 1973;	CAPM: Sharpe 1964;Lintner 1965; Mayers 1972; Merton 1973b	Conglomerate Performance: Weston & Mansinghka 1971: Weston. Smith &	*Financial Strategy* Myers 1984a	

		Kim & Arkins 1978; Sartoris & Hills 1983; Gentry 1988; Kim & Srinivasan 1988, 1991; Hill & Sartoris 1988, 1993 *Merger Analysis*: Weston 1953	*Financial* Distress; Altman 1968; Warner 1977	Shrieves 1972 *Critique of* CAPM:Merton 1972, Roll 1977	*Synthetic Securities:* Cox & Rubinstein 1985	
		Dividend Growth Model: Gordon & Shapiro 1956	*Event Analysis*; Fama, Fisher, Jensen, & Roll 1969; Brown & Warner 1980	*Option Pricing* Black & Scholes 1973: Merton 1973a; Rubinstein 1976	*Portfolio Insurance* :Rubinstein &Leland 1981	
		Auctions, Games, Information: Luce & Raiffa 1957; Vickrey 1961		*International Finance*: Solnik 1974; Adler & Dumas 1982; Levi 1983: Solnik 1991	*Financial Engineering:* Finnery 1988; Smith & Smithson 1990	
		Capital Structure: Durand 1952; Modigliani &		*Contingent Claims Analysis*Brennan & Schwartz		

		Miller 1977; Myers 1977. 1984b; Myers & Majluf 1984; Titman 1984		1978		
				BOP: Sharpe 1978; Cox, Ross & Rubinstein 1979; Rendleman & Barter 1979;		
				APT: Ross 1976; Roll & Ross 1980: Bower, Bower & Logue 1984; Chen, Roll & Ross 1986		
				Financial Contracting: Smith & Warner 1979; Emery & Finnerty 1992		

A. Investment Decisions and Valuation

The origins of some fundamental concepts of finance are found in the writing of Irving Fisher, particularly *The Theory of Interests* [34]. As J Hirshleifer observed in the *Investment, Interest, and Capital [49],* the

logical structure of Fisher's work was explaining individual investment decisions as in tertemporal choices among consumption opportunities (under certainty) and reviewing interest rates as equilibrium prices clearing markets for consumption claims. Hirshleifer extended Fisher's work, particularly in dealing with the treatment of intertemporal decisions under uncertainty. Similarly, fundamental concepts of valuation theory emanated from the John B. Williams book [138].

Significant new empirical studies were begun in the late 1930s under auspices of the National Bureau of Research (NBER. Neil H. Jacoby, Raymond J. Saulnier, and their associates produced a series of monographs on new developments in financial forms and institutions related to the changing economic and financial environments. They produced monographs on subjects such as financing uses and sources, equipment financing receivables financing, direct placement, e.t.c. Some of the studies were purely descriptive in setting forth cross-sectional patterns in asset structures and their financing sources. But, in general, the aim of these NBER studies was to relate innovations in financial practices to developments in the economy and financial markets (Jacoby and Saulnier [52]).

In the early 1950s, Joel Dean published his *Managerial Economics* [21] and his companion book. *Capital Budgeting* [22]. These two books stimulated a stream of studies stemming from top management's concerns with investment decisions on plant, equipment and product development. Current textbook chapters on capital budgeting still owe a considerable debt to the pioneering work of Joel Dean and his associates. Stimulated by an attempt to deal with one of the analytical aspects of equipment decisions was the paper by Gordon and Shapiro [41], which studied the required rate of profit in Shapiro dividend growth valuation mode..

In 1950, a conference sponsored by the NBER was held on the theory of business finance. At this conference David Durand of MIT, presented a paper contrasting what came to be called the NOI versus NI approach to the cost of capital and the value of the firm (Durand [27]. In the NOI approach, net operating income represents the flow that is capitalized; portioning the flow between returns to debt and returns to equity could not affect a firm's cost of capital or its value. In the NI approach, a change in leverage could affect both the value of the firm and its cost of capital. Durand [27] and later empirical work of Myron j. Gordon [40] appeared to support the NI theory. This was a period in the United States during which relatively mature large corporations did most o their financing cash retentions.

B. Capital Structure Theory

Modigliani and Miller (M&M) [81] opted for the NOI approach. Based on framework similar to the fundamental methodology of microeconomics, which starts with idealized assumptions of pure and perfect competition in factor and product markets, M&M formulated the propositions of capital structure and dividend irrelevance. Ultimately, the M&M propositions had a great impact because they specified that, under assumptions similar to those for perfect competition in microeconomics, the cost of capital (and, therefore, firm value) could not be affected by leverage of dividend changes. Subsequent developments (to which both Miller and Modigliani contributed) analyzed how the relaxation of individual M&M conditions influenced the cost of capital and valuation. These studies (see Weston [131] for references) demonstrated how other variables such as taxes (corporate, personal, capital gains). Bankruptcy risks and costs, asymmetric information, signaling and product durability (Titman [126] could influence leverage and dividend decisions.

Another important conceptual development was agency theory and its applications, formulated by Jensen and Meckling [59]. The implications of agency problems were developed for many areas of finance, thereby adding important new dimensions to their analysis. For example, the understanding of capital structure was advanced by Smith and Warner [109] in their paper on financial contracting, which analyzed the implications of debt covenants. The considerable subsequent literature in this area has been reviewed by Emery and Finnerty [28], who pointed out the importance of the interactions of various financial contracting considerations in determining the characteristics of debt instruments.

C. Risk and Return (Factor Models)

Markowitz [71, 72] had demonstrated how efficient portfolio could be constructed by the use of mean-variance analysis. Drawing on these insights and their implications, the Sharpe Lintner capital asset pricing model (CAPM) emerged in 1964 (Lintner [69], Sharpe [104]. Only systematic risk is priced in the equation for measuring the required return on an asset. The risk component of the required return to an individual security is measured by the covariance of its returns with the returns on the market portfolio. This was another powerful development in financial economics, leading to the award in 1990 of a share of the Nobel Prize to Bill Sharpe (as well as to Harry Markowitz and Merton Miller).

The early CAPM model employed a risk-free asset. If no risk-free asset exists, Black [6] showed how the use of a zero beta portfolio preserves the major results of the CAPM. Mayers [73] demonstrated that the CAPM can be extended to include non-marketable assets such as human capital. The appropriate measure

of risk is still the covariance, but with two portfolios, one composed of marketable assets and another of nonmarketable assets. Merton [76] formulated an intertemporal capital asset pricing model in continuous time. If the risk-free rate is stochastic, a third fund is necessary to hedge against unanticipated changes in the future risk-free rate, so atha the resulting model exhibits three-fund separation.

Early –empirical work provided some confirmation for CAPM. The empirical security market line appeared to have a somewhat higher intercept and a somewhat smaller slope than the theoretical CAPM, resulting in higher than predicted empirical returns for low beta companies and lower than predicted empirical returns for high beta companies. But in the late 1970s, when the prime rate rose above 20 percent, some uses of CAPM in cost of capital calculations in regulatory proceedings as well as in international financial decision making were (to put it kindly) incautious at best.

In addition, subsequent work challenged CAPM on both theoretical and empirical grounds. Roll [92] emphasized the sensitivity of the position and shape of the efficient frontier to the selection of the index for measuring the "market." The recent work by Fama and French [31] found that traditional betas had no explanatory power in studies of returns over long time periods, whereas firm size and book-to market ratios did. In response, Roll and Ross wrote: "… the recent paper by Fama and French [31] forcefully resurrects an old finding tha there is virtually no detectable cross-sectional beta return relation… Earlier papers reported the same result" ([94] p. 2). After listing many such papers, they performed some analytics that brought them to a number of conclusions, such as the following:

As we have seen though, the empirical findings are not by themselves sufficient to cause rejection of the theory. The cross-sectional relation is very sensitive to the choice of an index and indexes can be quite close to each other and to the mean variance frontier and yet still produce significantly different cross-sectional slopes, positive, negative or zero. The finding that a market index proxy does not explain cross-sectional returns is consistent with even a very close, but unobserved true market index being efficient.

Furthermore, since all the estimates are subject to serious sampling error, the proxy itself may actually produce a positive cross-sectional expected return true beta relation which cannot be detected in the sample mean return estimated beta relation. ([940] p. 12).

Meanwhile, CAPM has been attacked from another direction. The multifactor approach to asset returns in Merton [74]. Roll and Ross [93], and Ross [95], and the later empirical work (see, for example, Chen. Roll , and Ross [15], explained asset returns better than CAPM, took care of the size effect, etc. in arbitrage

pricing theory (APT) formulation, returns are related to unexpected changes in industrial production, inflation, the shape of the maturity yield curve, and the shape of the risk yield curve. Another potential factor, given the great impact of the OPEC cartel policies of 1973 and 1979, is the price of oil, Fama [30] observed.

> On the other hand… the results… are sensitive to the assets used in the tests and the way the Bs of economic factors are estimated in disturbing….the multifactor models are licenses to search the data for variables that ex post, describe the cross-section of average returns. It is perhaps no surprise, then, that these variables do well in competitions on the data used to identify them.

Burton Malkiel, in a chapter titled "Risk and Return: A New Look" in a NBER book edited by Benjamin M. Friedman [36], suggested that the factors to consider from an economic standpoint were, market risks (beta), economy risk (national income or gross domestic product or an index of industrial production), inflation risk (interest rate risk), and the dispersion of analysis' forecasts on grounds that "this risk variable may serve as a good proxy for a variety of systematic risks" [p.40]. Without settling all the issues raised by APT, it has been demonstrated that one can get some useful information and insights by reasonable and straightforward applications of APT (D.H. Bower, R. S. Bower, and D.E. Logue [8]).

It is generally true that a well-constructed multivariate model will "explain" more that a univariate model. A central problem in finance is that the theories call the use of expectations. But historical date are used in empirical tests. In addition, the empirical parameters are unstable over time. Nevertheless, single-factor and multifactor models agree on some broad patterns. Equities should yield more than straight bonds. Junior bonds should yield more than senior bonds. The bonds of highly leveraged firms should yield more, other things being equal, than the bonds of less leveraged firms. Convertible securities with equity-like characteristics among different types of securities without exception find a positive intercept and significant positive relationship between beta risks of securities classes and their returns.

It is remarkable that many of the new intellectual developments in finance portrayed in Exhibit 1 have received immediate acceptance and use by practitioners. Many of these advances were stimulated by financial practice as well. Even when controversy remains, we obtain many useful insights handle practical problems. They inform our judgments and enable us to avoid conceptual errors. Even where the controversies between alternative models continue, the sparks of these clashes can illuminate and guide the practitioner.

D. Derivative Securities

A whole new way of looking at finance followed from the development of the option pricing model associated with back and Scholes [7]: Cox, Ross, and Rubinstein [91[: and Merton [75]. Their work, in turn, led to more complex studies of contingent claims analysis such as the use of stochastic calculus in option pricing constructs by Brennan and Schwartz [II]. Sharpe [105] originated binomial option pricing (BOP) models to simplify his classroom exposition of the closed form solutions provided by the option pricing models of Black and Sholes. The BOP has been a versatile tool for analyzing uncertain streams and the role of derivative securities. Cox and Rubinstein [18] provided a comprehensive, definitive treatise on options and option markets. Among their notable contributions is the demonstration that synthetic securities and derivatives could be developed from combined long and short positions in a variety of instruments.

Applications of the analytic frameworks stimulated by BOP have led to work on synthetic and derivatives securities – financial engineering that has created a wide range of new types of securities transactions. Portfolio insurance is a concept directly derived from thinking in the BOP framework (Rubinstein and Leland [99]). Derivative securities combined with innovations in the use of forward and futures markets, along with their expression in the form of swaps and related transactions and institutions, have led to a risk management literature (Smith, Smithson, and Wilford [108]). The use of options in areas such as capital budgeting has enriched the analysis by considering options to defer investments, to shut down the use of durable goods temporarily, and to abandon operations before the end of their physical life (Brennan and Schwartz [12]). Options concepts have provided insights and contributed to the development of the literature and practice in the three important areas of financial strategy, financial engineering, and risk management.

Economic, financial, and competitive changes have increased the need to manage and reallocate risk and to relate risks to alternative patterns of future states and alternative scenarios. Dynamism in the economic, financial, political, and cultural environments has highlighted the tensions in control mechanisms at ever level – world, nation and organization (business units) – emphasizing the need to deal with governance, control, and agency issues and their costs. The resulting effects on volatility and the market micro-structure have been analyzed by Damodaran and Subrahmanyam [20]. Another review considers the role of general equilibrium analysis in the field of contingent claims and examines the nature of the stochastic processes for underlying security market assets (Hodges, Selby, Clewlow, Strickland, and Xu [50]).

E. Games and Information

The seminal studies of Luce and Raiffa [70] and Vickrey [27] introduced a literature on auctions, games, and information. A readable introduction with numerous examples is provided by Rasmusen [89]. Game theory models have increasingly found their way into the mainstream of finance literature (Rasmusen [90], Thakor [125]). They provide language and analytical concepts increasingly used throughout finance. The richness of the material is conveyed by a sample of the materials covered in Thakor's review paper. Game theory is defined as the analysis of decisions and actions of agents involved in particular interactions (or games). When more than once decision maker is involved, their actions and decisions affect each other. The game may be played cooperatively (collusion) or non-cooperatively. A strategy combination is a Nash equilibrium if no player has incentives to deviate from the strategy, given that the other players do not deviate. Other concepts of equilibrium are also introduced, and criteria for evaluating them are formulated. Applications to financial decisions are presented by Rasmusen, Thakor and others.

F. Takeovers and Corporate Control

The areas of M & A corporate control, and restructuring, which gathered momentum in the 1970s, exploded in the 1980s. Exhibit 4 provides an overview of the many forms of restructuring and their event returns to shareholders. Most produced event-related positive. "abnormal" returns.

The returns from takeover and restructuring activities have been analyzed by the use of one, or a combination of, the theories summarized in Exhibit 5.

A large and growing literature has sought to test and analyze the reasons and results of the many forms of takeovers and restructuring. (See the many publications by Jarrell. Brickley and Netter [53] and by Jensen, his students, and associates [56-61]].) Textbook summaries and numerous references are found in Gaughan [37] and in Weston, Chung, and Hoag [134].

Effective summaries of the theoretical materials are found in Hirshleifer [45-46]. Theoretical models start with the Grossman and Hart [43] free-rider problem, which can be summarized by a simple numerical example. The stock of the target (T) firm is selling for S40. A bidder (B) offers S60 in a takeover (tender offer). An atomistic shareholder in T does not tender since his "vote" will not influence the result. If the tender offer succeeds, the small shareholder in T expects to hold a share of stock that will rise in value above S60. If this particular tender offer does not succeed, the small shareholder in T believes that the

increased value discovered by the bidder and the competitive market for corporate control will cause the price of the stock to rise above S60.

Grossman and Hart solve the free-rider problem by post-acquisition dilution, that is, selling off assets of the acquired company to another company controlled by the successful bidders. Other methods of solving the free-rider problem by having a large shareholder (or equivalently a bidder with a relatively large foothold) who pays the full value of his expected improvement and profits on his initial stake. With different assumptions about the process, Hirshleifer and Titman [48] solve the fee-rider problem deal with other issues through a model in which the individual (atomistic) shareholder is indifferent between tendering. Other models posit methods by which shareholders of the bidder firm may become pivotal (Holmstrom and Nalebuff [51]). Analysis of multiple bidders moves to the realm of a game-theoretic framework. Seminal papers in this area include Fishman [35] and Hirshleifer and Pag [47].

Alternative methods of payment used by the bidder and the role of taxes in the transaction are additional topics that cut across the several issues outlined above. Also important are the issues of takeover defenses, managerial voting power and compensation, corporate governance, and corporate control.

A widely accepted view of the history and theory of takeover activities has been articulated by Jensen [54-61]. According to Jensen, agency problems were aggravated by "the regulatory banishment of active investors in the 1930s" ([58], p. 659). Prevented by government antirust policy from takeovers in their core lines of business activity, American corporations embarked on diversification programs during the conglomerate merger movement of the 1960s. Beginning in the mid-70s, it was recognized that diversification was unsound, and the premiums of 30-50 percent received by targets reflected the value of reversing unsound conglomeration. The activity of the 1980s provides lessons for improving management practice: "decentralization, downsizing, increased pay for performance and equity holding by managers and employees, increased cooperation with active investors and the use of leverage at divisional levels to increased cooperation with active investors and the use of leverage at divisional levels to increase the incentives for efficiency". Jensen concluded that new legislation at the end of 1980s interfered with the self-correcting adjustment processes already under way.

Exhibit 4 Theories of Mergers and Takeovers

I. **Efficiency Theories** – Potential for social benefits

A. *Differential efficiency* – acquirer's superior management improves efficiency in target

B. *Inefficient management* – target management is inefficient

II. **Operating Synergy** – Economics of scale and scope: complementarities of organizational capabilities

III. **Financial Synergy** – Lower cost of capital from joining of imperfectly correlated cash-flow streams

IV. **Underutilized Debt Capacity** – Potential justification for increased leverage

V. **Strategic** – Realignment to changing environments

VI. **Market Below Replacement Cost** – When the "q-ratio" is below one, buy the securities of a firm to acquire capacity

VII. Undervaluation

A. *Short-term myopia* market participants under value corporations with long-term investment programs

B. *Information* – announcement reveals "sitting on a gold mine" or prospective "kick in pants".

C. *Asymmetric information* – target management knows more than the bidder or public

VIII. **Signaling –** Tender offer may signal that future cash flows will rise

IX. **Incentives Alignment** – Creation of executive compensation packages to better align managerial incentives with those of shareholders

X. **Agency Problems and Managerialism** – Agency costs due to separation of ownership and control

XI. Winner's Curse

A. Winning bid based on most optimistic estimates

B. *Hubris hypothesis* – errors of over-optimism in evaluating takeovers

XII. **Market Position –** Large firms possess market power

XIII. **Redistribution –** Shareholders gain at the expense of other stakeholders

XIV. **Tax Influences –** Possible better utilization of tax credits, etc.

The assessment of the relevant theory and evidence has a somewhat different emphasis. The conglomerate merger activity of the 1960s was not accounted for by "American corporations, dominant in their product markets, flush with cash…" (Jensen [58]. P. 659). Almost 50 percent of the firms regarded as most active in conglomerate acquisitions were seeking to adjust to the uncertainties of the defense market or were in exhausting-resource areas such as petroleum and forest products. Other conglomerates were seeking to diminish undue dependence on foreign markets and unstable governments, to develop their domestic business, and to reduce their dependence on the telephone equipment market as well. Firms that had had high market shares in individual produce market lines had less pressure to engage in diversification during the 1960s.

The following major causative factors that changed the takeover market reflected fundamental changes in the external environments to which firms must relate.

(1) The internationalization of competition eroded the competitive advantage of U.S. producers in important markets.

(2) Changing production and managerial technologies altered the scope and boundaries of markets, resulting in new forms of domestic competition as well (autos, steel, computers).

(3) The rise of discretionary consumer incomes resulted in inter-product competition (recreation competes with expenditures on clothing).

(4) Financial innovation made all firms subject to takeover, including hostile tender offers.

Diversification activities of large firms such as General Electric have increased during the 1980s, and the scope of activity of the largest firms broadened rather than narrowed during the last decade.

The activities of the 1980s highlighted issues of corporate governance. The securities legislation of the 1930s provided investors with additional information and restricted the activities of commercial banks and investment bankers. Nonbank financial institutions such as insurance companies, pension funds, and mutual funds became holders of about half of corporate equity by the 1990s. But despite their increasing share of corporate ownership, institutional investors did not seek to influence corporate managements directly. They

voted by purchasing the shares of companies with good performance and selling the shares of poor performers.

The leveraged buyout firms were at least in part of response to weaknesses in corporate control mechanisms. Leveraged buyouts enabled mangers to achieve substantial ownership positions, providing them with incentives to behave like owners. This object lesson in the values of responsible corporate governance stimulated institutional investors by 1993 to become activists in influencing the selection of the chief executives at major companies such as IBM, General Motors, and American Express. In substantial measure, the takeovers and buyouts of the 1980s signaled major changes in corporate control and governance mechanisms in the United States.

G. Financial Distress

Related areas of analysis include financial distress, reorganization, bankruptcy high-yield securities, junk bonds, and highly leveraged transactions. (HLTs) Although the prevailing U.S. bankruptcy law was enacted in 1978, its impact was not recognized until after the 1980s. The key provision is that the debtor management (which guided the firm into financial distress) remains in possession of the company and has a dominant role in formulating reorganization proposals. Some have argued that the ease of using the bankruptcy laws was an important factor in the "overleveraging" of the 12980s. Between 1980 and 1990, the number of annual bankruptcy filings tripled, and the assets of public companies filing for bankruptcies surpassed S80 billion per year in both 1990 and 1991, exceeding by at least 50 times the levels of the early eighties. The size of the distressed security market in 1990 has been estimated at a book value of over S350 billion (Altman [3]).

Many important issues have been raised by the rise of bankruptcies, junk bonds, and distressed securities. The nature of the subject is conveyed by Exhibit 5.

Exhibit 5 Topics Related to Financial Distress

I. The Nature of Financial Distress

II. Causes of Financial Distress

   A. Economic and other environmental factors

   B. Managerial policies and other internal problems

III. Prediction of Financial Distress

A. Accounting Data

B. Financial market data

IV. Alternative Remedies for Financial Distress

A. Reconstracting, extension, composition

B. Voluntary

C. Cost-supervised

V. Voluntary Procedures

A. Financial restructuring

B. Reorganizing policies and operations

C. Asset divestitures and sales

D. Capital infusion

E. The turn-around entrepreneurs

F. Potential impediments to private restructuring

1. Free-rider problem

2. Asymmetric information

3. Conflicts of interest

VI. Operation of the 1978 Bankruptcy Act in the United States

A. Strong position of debtor

B. Fairness

C. Feasibility

D. Absolute priority

E. Write-downs

F. Valuation and value trends

VII. Issues Related to Financial Distress

A. Theory of the firm

B. Costs of financial distress

C. Costs of bankruptcy

D. Effects on the underinvestment problem

E. Effects on risk premiums on debt and equity

F. Returns to shareholders and other stakeholders

G. Effects on executives – turnover and compensation

H. Effects on capital structure policies

I. Effects on dividend policies

Important questions posed by the topics in Exhibit 5. What are the effects of financial distress and financial reorganization rule on lenders and availability of financing for enterprise? Are the direct and indirect costs of bankruptcy large enough to impact models of the firm? Are resources dissipated or enhanced by the reorganization process? Should the bankruptcy statutes and other legal rules be change? These and related issues were explored in a two-volume collection of papers edited by Jensen and Ruback [61]. Other book-length treatments include those by Altman [3] and Branch and Ray [9]. Progress will be further advanced by the emergence of formal models of financial distress (Gertner and Sharfstein [39]. John and Johan [62]. and Wruck [139]).

The widespread activity and burgeoning literature have given rise to the development of courses on financial distress in the finance curriculum. In addition, sessions on this topic have been appearing regularly

during the annual meetings of the Financial Management Association. It is clear that these expanding areas of academic research and teaching have represented responses to substantial changes in the economic environment.

IV. Short-Term Financial Management (STFM)

Because of its importance in financial practice, the working capital management area continues to be significant. In recent years this area has come to be called short-run financial management (Gentry [38]) or short-term financial management (Hill and Sartoris [44]). In reporting the results of a survey on the activities of financial managers, Weston [130] found that:

(1) Working capital management represented a major activity in the day-to-day responsibilities of finance officers;

(2) The decisions were important to the success of the firm and required a high level of competence;

(3) These activities had to be related to the longer-term policies and decisions involved in the investment and financing activities of the firm, as well as to the other management activities in the firm.

In an early state-of –the –art paper. K.V. Smith [111] summarized eight approaches to working capital management.

The first three, aggregate guidelines, constraint set, and cost balancing are partial model: the next two approaches, probability models and portfolio theory, stress future uncertainty and interdependencies: while the last three approaches, mathematical programming multiple goals, and financial simulation have a broader, systematic focus.

Models of the management of corporate cash balances had been developed by Baumol [5] and by Miller and Orr [80]. Many other important facets of cash management were further developed by Bernell K. Stone [117-122].

A subsequent state-of-the-art paper by James Gentry [38] articulated effectively the many important dimensions and contributions of the literature on short-run or short-term financial management. In a discussion both comprehensive and analytical, Gentry demonstrated the important roles of STFM for the development of ideas in finance. He recognized the contributions of analyzing STFM in a CAPM valuation framework. Another important advance was initiated by Kim and Atkins [63] in 1978, who first used the net-present-value approach to judge accounts receivables investments. Their model was further developed by Sartoris and Hill [101] and other writers.

Gentry also set forth the reasons why the cash management literature began to blossom in the 1970s. The economic environment of high inflation and high interest rates increased the importance of effective cash management. More-accessible computer technology made it economical to analyze cash receipts and disbursements on a daily basis.

Important contributions to the analysis of receivables were made by Carpenter and Miller [14] and by Stone [120]. Contributions to the theory of accounts receivable and the role of factors were made by Mian and Smith [77] and by Janet Smith [110]. In discussing future directions. Gentry called attention to the framework developed by Srinivasan and Kim [115,116] in grouping cash management decisions as operational and infrastructional. Gentry also explained how the development of electronic and computer technologies has created a revolution in the management and control of current assets and current liabilities. He also noted the potential of artificial intelligence and expert systems. The present brief overview inadequately captures the full content of Gentry's wide-ranging panoramic vistas and the writers whose contributions he described. Kim and Srinivasan have continued the momentum of WCM research with their two-volume book. *Advances in Working Capital Management [64-65].*

V. Financial Strategy and Growth

Another area of growing importance is the relationship between strategy and finance. Gentry [38] commented on the potential of the strategy literature (Porter [86,87]) and shareholder value literature (Donaldson [26]. Rappaport [88]). These writings demonstrated a crucial link between financial strategy and corporate strategy and corporate strategy. They call attention to the critical parameters ("value drivers") relating the free cash flows of a firm to its cumulative performance in the financial markets.

The options-contingent claims literature also suggests links between finance and strategy. These ideas have been developed in the paper by Brennan and Schwartz [12] on evaluating natural resource investments. A number of asset options provide opportunities for strategic decision making. A taxonomy of asset options would include the abandonment option, the option to defer development, the option to expand or grow, the option to shrink, and the option to switch projects.

Growth in investment opportunities and sales represents a powerful force for value creation. Surprisingly, the concept of growth has received a somewhat disjointed treatment in the financial literature. Capital structure papers generally make a zero-growth assumption. In the Miller and Modigliani 1961 dividend paper [79], sources of alternative patterns of growth and growth opportunities are analyzed.

Growth is generally most meaningfully measured with reference to free cash flows. In the basic models of Gordon-Shapiro and those of Miller-Modigliani, all the key variables grow at the same rate. The same assumption is made in models used by financial consultants (see, for example Rappaport [88]. These include sales and (since they are usually specified as a fixed ratio to sales) assets working capital, fixed assets and cash flow as well.

Most of the finance literature on capital structure and in central models such as the CAPM. OPM and APT is in the spirit of the static classic models of Marshallian economics. This is true in empirical tests

as well. For example, the Fama and French [31] study does not consider growth as a variable. Yet the two variables they identify as important influences on historically measured returns are the market-to-book ratio and the price-earnings ratio. It is well established in the finance textbook literature that both measures are greatly influenced by growth in the firm's cash flows as well as reflecting risk factors.

VI. International Finance

In their paper, "International Portfolio Choice and corporation Finance: A Synthesis," Adler and Dumas [1] provided an overview of the central theories and related empirical studies of the major issues in international finance. Their findings are supported by later analytical treatments (see, for example. Levi [67]: Solnik [114]).

A Purchasing Power Parity (PPP)

The purchasing power parity theorem, states that in competitive markets the exchange-adjusted prices of identical tradable goods and financial assets must be equal worldwide (taking account of information and transaction costs). PPP deals with the rates at which domestic goods are exchanged for foreign goods. Thus if X dollars buy a bushel of wheat in the United States, the X dollars should also buy a bushel of wheat in the United Kingdom. Expressed equivalently, the purchasing power parity doctrine states that people will value currencies for what they will buy. If an American dollar buys the same basket of goods and services as five units of a foreign currency unit should be worth SO.20.

PPP is distinguished from commodity price parity (CPP) – the law of one price. CPP is an arbitrage condition that holds between the prices of identical traded goods in two locations in the absence of trade barriers. It may also hold for nontraded goods that are close substitutes for traded goods. PPP is a relationship between baskets of goods or weighted average price levels. CPP is sufficient condition for PPP.

In practice, price levels are measured by indices calculated relative to some base period yielding *relative* PPP. For PPP to hold, the price indexes must be a valid representation of consumption possibilities and preferences. PPP could hold despite differences in tastes and non-traded goods with sufficient substitutability between goods to produce high correlations between the price movements of individual commodities.

The empirical evidence reveals deviations from PPP that are large and persist for long but variable periods. Sources of deviations from PPP include differences in factor costs and production functions. While improvements in technology and communications along with changes in regulations have greatly enhanced the mobility of capital – financial and intellectual – other factors of production remain relatively immobile. Differences in consumption baskets reflecting differences in national tastes also contribute to PPP deviations. Other explanations include taxes tariffs, transaction costs, asymmetric information, imperfect competition, and measurement error.

B. International Returns and Portfolio Choice

International returns are stable but fat-tailed distributions. Adler and Dumas suggested that for various reasons the distributions may be regarded as approximately normal, but the correlations of returns across nations are small. Hence a potential for international diversification to reduce risk is "unquestionable" (Adler and Dumas [1]. P.938). The construction of optimal international portfolio and evaluation of their benefits involve complex issues.

Adler and Dumas first considered optimal portfolio choice in unified world capital market with no transactions costs or taxes, but with nationally heterogeneous consumption preferences. All investors have access to the same menu of financial assets plus one default-free. Short-term bond per country. All bonds re risky in real terms. Currency translation raises difficulties, and the estimation problems are especially severe in testing an international asset pricing model (IAPM). The non-stationarity of parameters coupled with the use of historical data where expected values are required causes a serious

wedge between models and tests. Merton [76] has suggested a solution at the theoretical level using state variables to estimate the parameters, but the technique has not been implemented in practice.

International asset pricing models are fully valid only when investors use the same price index in deflating returns. Nevertheless, Adler and Dumas indicate that it is possible to derive an expression for the forward exchange rate as function of the distribution of the future spot rate corresponding to the maturity of the forward contract. But the forward rate differs from the expected value of the stock rate by two premiums. One stems from the risk aversion of investor speculators. The other premium would exist under risk neutrality arising from random inflation. Thus there is nominal risk as well as risk as well as real risk.

In their final section, Adler and Dumas analyzed hedging policy. They observed that in a complete, perfect and unified international capital market, corporate hedging would be unnecessary. In the real world with the imperfections they have discussed, measuring exposure and methods of hedging exposures involve a large number of variables. Among the factors that make measuring exposure and dealing with exposure through hedging difficult are (1) the impact of PPP deviations on sale prices and unit costs" (2) the indirect impact of fluctuating exchange rates and impact via sales prices on quantities sold, and consequently on production schedules: (3) the impact of fluctuating exchange rates on replacement costs and purchase prices of physical assets used in the production process: (4) their impact on short-term nominal net assets with maturities equal to the planning horizon date: (5) the impact of exchange rate on longer-term nominal net assets whose maturities fall beyond the planning horizon end date: and (6) an additional variable: when a firm tenders or bids for a project or a sales contract abroad, it is uncertain whether it will succeed: nevertheless, in anticipation of undertaking the project, it may be prudent to enter inter into hedging actions, not necessarily in forward markets, but possibly by taking positions in currency options markets, puts, calls, and swaps.

The survey by Adler and Dumas and subsequent literature demonstrate that the key issues for international portfolio choice and corporate finance have been identified but are far from resolved. Even

at the practical level, methods of measuring exchange risk exposures and dealing with them have not been worked out. Nor is there agreement on issues such as whether Japanese firms have lower financing costs and therefore a financially derived competitive advantage (FDCA). A widely held view is that this is so. An alternative view is that FDCA is confused with the more rapid rate of improvement in business practices and productivity, which resulted in both favorable trade and favorable exchange rate movements for Japan. (Cf. J.F. Weston [132])

VII. A Flowering of Finance Journals

Related to the explosion of information and concepts has been a parallel expansion in the number of financial and finance-related journals. This is presented in the form of a time line in Exhibit 7. Of the 36 journals covered in J. L. Heck's 1992 *Finance/Accounting Literature Database for the Personal Computer,* we see the numbers of new finance journals increasing, particularly during the 1980s. if the 1980s was the decade of the deal. It was also a period that spawned new financial journals.

The Brealey and Edwards [10] bibliography of finance covers 120 periodicals organized by 328 key words and 529 topics. It contains over 12 thousand entries, 56 percent of which appeared in 1980-1989, and 30 percent in 1970-1979, or 86 percent since 1970 and 99.2 percent since 1950. So those who obtained their Ph.D. training before 1970 covered 14 percent of the literature in B&E references. Moral: Your Ph.D. enables you to keep up with the literature and to contribute to its further development.

A confident prediction can be set forth based on the date and patterns described above. Recent years have seen the multiplication of new concepts, new propositions, and new ways of looking at financial data and decisions. The analysis, research, and writing stimulated by this intellectual growth have resulted in proliferation of journals to record the theory, evidence, and practice produced by the burgeoning research activity. The history of thought and ideas teaches us that invention nurtures more invention. Innovation feeds on itself, so we can expect the two horns of plenty depicted Exhibits 3 and 7 to further extend and widen their boundaries. Thus, it is becoming more difficult to be conversant with

all areas with all areas of finance and keep up with even that sample of journals covered in the reference volumes on finance literature.

VIII. Coping with the Knowledge Explosion

From the above review, two related questions naturally arise. **One**, what will be important in the future? **Two**, how do we cope with such an explosion of concepts and literature? We can best answer the two questions together. Clearly, some core ideas and methodologies will have become and will continue to be essential in the toolbox of the financial economist and financial manager. These include the following:

- Utility and behavioral theory – how individuals make decisions and choices and react to risk
- Elements of game theory – for understanding decisions and choices: competitive behavior and reactions or rivals
- Basic concepts of microeconomics – the nature of the unstable environment in which financial decisions are made
- Option pricing models – the key to understanding synthetic securities and risk management
- Event analysis techniques – to analyze the market's initial assessment of the value impacts of change
- Performance measurement – to measure longer-run effects of decisions and actions
- The microstructure of security prices- to understand price formation and security price dynamics
- Factor models – both single and multiple, to analyze broad influences on assets returns
- International parity conditions – global markets require an understanding of the international dimensions of asset pricing returns.

These are core conceptual areas. They are applicable to a wide range of issues and problems. They are also effectively employed on a narrow range of issues as well. But most important, they are not to be used in

isolation. They must be integrated with the planning and operating activities of the firm as a whole. They are not ends in themselves but contributors to the growth and performance of the firm as a whole. They must interact effectively with the other decisions processes in the firm.

The quantitative techniques to understand and employ the core ideas can vary. In this day calculus is minimum. Matrix algebra and facility with the calculus of variations including stochastic calculus provide access to important literature.

Knowledge of econometrics is another essential tool. We must not only learn it, but also use it to understand its powers and limitations. This is true for MBAs and practicing managers, as well their mentors.

The most important managerial attributes are energy, drive, interpersonal skills, experience, and above all, good judgment. The foregoing presentation has been slanted toward the values of formal analysis, but, while quantitative techniques perform an essential function, not everyone can be or need be a quantitative whiz. The art of case studies is increasingly converging to rigorous testing of propositions, in addition to illuminating the results of more formal quantitative methodologies (see, for example, Baker [4]: Ruback, [96,97).

Since innovation builds on the reservoir of concepts and tools, we can expect the explosion of literature and knowledge to continue. Although competence in key techniques and methodologies can be applied to a wide array of issues and problems, we are likely to see selectivity and specialization of research, teaching, and practicing scope. We get good at what we spend most of our time doing. So in addressing the challenges of the future, we can be what we want to be by relating our studies and activities to our interests, aptitudes, and aspirations.

QUESTIONS TO PONDER

1. Why is valuation and important problem in finance?

2. How can including international securities in a portfolio reduce portfolio variance in return?

3. What Is meant by “agency costs”?

4. How can the threat of takeover provide incentive for managers to operate in the interests of shareholders?

5. What do we mean by short-term financial management?

END