



DESIGNING A CONVERSION MASTERS SUBJECT WITH FLEXIBLE ASSESSMENT

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This paper develops a consistent approach to the design of a subject, The Economics of Financial Markets, which is a required course for a conversion Masters program. The course is a large enrolment (>50) with students coming from a number of countries and backgrounds in economics. In general, students display anxiety about theoretical aspects of the course and find it difficult to distinguish between the *economics of financial markets* and financial markets as taught in a standard finance course. Students display a high degree of reliance on lecturer notes and are more equipped to undertake rote learning than analysis. The subject design takes these factors into account and draws on educational principles and on economic analysis to establish the design framework. In order to distinguish *the economics of financial markets* from *financial markets* the subject design provides economic organising concepts; these are the efficiency of financial markets and the impact of financial variables on the real sector of the economy. In addition, the subject design develops a *standard analytical procedure* for analysis of financial instruments and financial markets. In each sector of the subject, *standard analytical procedures* are identified as are the *specialised vocabulary* of the economics of financial markets.

The subject design incorporates both formative and summative assessment. The summative assessment is flexible allowing for some student choice but also providing incentives for students to undertake more than the minimum assessment tasks. The assessment instruments are related to the objectives of the course. Overall the assessment is designed to reduce student anxiety and encourage learning.

1. INTRODUCTION*

This paper arises out of my reflections about teaching a subject, The Economics of Financial Markets, which I have taught for some seven or eight years during which time it has undergone some changes; the major one is that it became a required

* Much of this paper was written while I was an academic visitor to the School of Economics and Finance, Queensland University of Technology. I'd like to acknowledge discussion of this design with Andrew Paltridge whose description of my design of flexible assessment as "retro" I find both accurate, as will be explained later, and appealing. Andrew's discussion of the experience at QUT of a similar form of assessment was very helpful.

course for a conversion masters program. The results of these changes were to increase student enrolment, with more diversity in student abilities and experience. I began to think more about the design features of this subject: just how could I consciously apply economic principles and educational practice to design a subject which had a clear and specific rationale, which could be taught within the constraints of organisational requirements and which could be a positive experience for both the students and me. My objective is to develop a consistent approach to the design of a subject, which is a required subject for a conversion Masters program and is an optional subject for other Masters degrees.

A fundamental feature of the subject design is that it must faithfully reflect in its details the general notion of the *economics of financial markets*. Economists look at financial markets in a different way to their cousins, finance academics. The latter are concerned with, if not consumed by, micro-details of the operation of financial markets, and the significance of financial markets for individual economic enterprises. Financial economists, while also fascinated such minutia, are much more interested in the effects of financial market variables on real economic activity.¹ Hence, an essential part of the design of the subject is to provide the means to make this clear to students and to give them skills to analyse financial markets in this way. Another problem to be overcome is the sheer scale of descriptive and factual matter about financial markets in the modern economy. Many of the markets considered in this course did not exist 30 years ago and the influence of financial markets, in general, was much less than it is today. There are many important reasons for this and it is important for students to understand the broad outlines of the reasons for the change as well as the contemporary financial structure.

The subject design takes these factors into account and draws on educational principles and on economic analysis to establish the design framework. In order to distinguish the *economics of financial markets* from *financial markets* the subject design provides some economic organising concepts. The more important of these are the efficiency of financial markets and the impact of financial variables on the real sector of the economy. In addition, the subject design develops a standard analytical procedure for analysis of financial instruments and financial markets. In each sector of the subject, *standard analytical procedures* are identified as are the *specialised vocabulary* of the economics of financial markets. The subject design incorporates both formative and summative assessment. The summative assessment is flexible allowing for some student choice but also providing incentives for students to undertake more than the minimum assessment tasks. The assessment instruments are related to the objectives of the course. Overall the assessment is designed to reduce student anxiety and encourage learning.

In turning to the economics education literature I found that while there is very little written about graduate economic education, the United States contributions are about the PhD program. The literature which I found relevant is considered in each section of the paper; there is no separate section on a literature review.

¹ An example of this is my paper, "The Role of Financial Markets in the Asian Financial Crisis", given at the ESAM02 Conference, Brisbane, July, 2002.

The paper is organised as follows:

- Background to the Subject
- Lecturer Perception of the Subject
- Design Principles
- Design of the Subject
- Concluding Comments

2. BACKGROUND TO THE SUBJECT

The subject, *The Economics of Financial Markets*, has been offered for some seven or eight years and has grown to a comparatively large size with student enrolments of over 50. It is a required subject for two Masters degree programs² and can be selected by students in other programs³. Students enrolled in the subject come from a large number of countries and have diverse backgrounds in formal study of economics. In general, students display anxiety about the theoretical aspects of the course and find it difficult to distinguish between the *economics of financial markets* and financial markets as taught in a standard finance course. Students display a high degree of reliance on lecturer notes and are more equipped to undertake rote learning than analysis.

The majority of students (65-70%) are enrolled in the Master of International Economics and Finance (MIEF) program. Most of these students are international students from Asia, Latin America and continental Europe. The MIEF program is a conversion Masters not requiring extensive previous study in Economics; some students have undertaken special bridging courses in Economics to satisfy entry requirements. Hence, the formal economic knowledge of the student body ranges from the bare minimum to highly accomplished. Many students have no sustained understanding of the theme of the course which is the *economics of financial markets*, confusing it with finance courses as taught in commerce departments.

3. LECTURER PERCEPTIONS OF THE SUBJECT

I had begun to fear that I may have become a curmudgeon when I began to think that the subject was more like an undergraduate subject or even an MBA subject as I pondered what seemed to me to be the fact that students display a high degree of reliance on lecturer notes and are more equipped to undertake rote learning than analysis. However, I was relieved to find that such perceptions are widely held by US academics. Lanier and Tanner (1997) report that the results of a survey of 166 management faculty revealed the general view that incoming management students are deficient in writing, verbal and mathematical skills; a majority of the faculty surveyed believed that students of today are not as motivated to learn as their predecessors. Lanier and Tanner (1997) further note that these findings are

² They are the Master of International Economics and Finance and the Master of Professional Economics.

³ For example the MBA, Graduate Diploma in Economics and the Honours degree in Economics.

consistent with those previously reported in the areas of accounting and marketing.

Rao (1995) notes the change in the composition of graduate economic courses; in 1992 more than half the students were foreign students. Rao further notes that, in 1991, 72 per cent of the foreign students were from Asia and that nearly half of the foreign students were from only four Asian countries namely South Korea, India, the People's Republic of China and Taiwan. Rao cites evidence that over 60 per cent of foreign graduate students remain in the USA after completing their PhDs. Yang and Lu (2001) cite data from the National Center for Education Statistics to reveal that in 1999 15 per cent of degrees in business management from American universities were conferred on "non-resident aliens" but claim that few faculty members have paid special attention to international students. Coats (1992) in discussing changing perceptions in US graduate economics education over the period, 1953 to 1991, notes that there are some common themes which persist over this time. One of these lies in the dissatisfaction with students' writing and communication skills and lack of creativity, although the difficulty of nurturing that desirable quality was acknowledged.

Tanner and Cudd (1999) cite studies that observed that professors in accounting, management, marketing and management information systems are in agreement in perceiving that students are especially weak in math skills and not adequately prepared in verbal, writing and communication skills. Their own survey of finance faculty revealed that the majority of respondents agreed or strongly agreed that those entering finance majors had poor writing skills and that half felt⁴ that graduating students still did not exhibit good writing skills. Moreover, there was survey evidence to indicate that the perception of poor writing skills was worse in 1996 than in 1989. Consistent with other findings, less than one third of the finance professors felt that finance students were as motivated today as when the faculty entered college.

Thus, a key problem in the subject design is to make clear this distinction between the *economics of financial markets* and financial markets as taught in a commerce department. It is obvious that students will not stumble on the distinction themselves and the design of the subject must provide students with the appropriate techniques to carry out an analysis of the *economics of financial markets*. This, it seems to me, requires careful specification of the basic concepts and techniques which students must first learn well before they can begin to operate in a way which would receive recognition from economists.

4. DESIGN PRINCIPLES

The key economic objective in the design of the subject is to introduce students to economic analysis of financial markets and to the relationship of financial market variables to real economic activity. Browne and Hoag (1995) report that the AEA Commission of Graduate Study found that the seven skills essential to economists are:

⁴ This leads one to ask if such perceptions about the inadequate preparation and capabilities of students are so entrenched, why hasn't something been done about it.

1. analysis;
2. mathematics;
3. critical judgment;
4. application;
5. computation;
6. creativity; and
7. communication.

They also report the results of a survey which revealed that the skill of "identifying central issues or hypotheses" received highest rating by economists and that other skills valued were "detecting fallacies and logical contradictions in arguments" and "testing the validity of an argument by searching for counter examples". Browne and Hoag conclude that evaluative or critical thinking skills were highly valued by the economics faculty in their sample. Thus, emphasis on analysis is supported by the profession's views.

Design to achieve skill in analysis requires the subordination of details of finance per se to emphasis on economic principles and economic analysis which, in turn, requires the creation of basic building blocks which indicate the concepts and techniques students must know well (or master) before progressing to analysis. This can be done by the construction of subject modules which are relatively self contained sub-units of the subject and which focus on specialised vocabulary and standard techniques of analysis. This is a retro design; it is the one I have used before as described in Stanford and Imrie (1981). I have been heartened to find that modern pedagogic discussion provides a framework to support this.

Hein and Stalcup (2001) provide six pedagogic foundations for subject design:

1. What is the type of information in the subject?
2. Is the instructional approach linear or non-linear?
3. Is there a need for active participation and collaboration in the classroom?
4. How to re-inforce the higher order thinking skills such as application, analysis, synthesis and evaluation?
5. What type of communication is necessary in the classroom?
6. How do we provide adequate resources for students to master the required tasks?

We can add a further two: What is the appropriate use of technology? How do we assess students?

The information in the subject in the earlier modules is highly conceptual and procedural (especially in financial calculations). This requires careful definition of concepts and procedures. In later modules, the emphasis is on analysis. In order to facilitate student learning two Standard Analytical Procedures, STAP, are developed; but more of this later.

The instructional approach is clearly linear requiring students to master specified tasks or terminology before proceeding to the next stage. Many factors conspire to inhibit active participation and collaboration in the classroom. In the design of *The Economics of Financial Markets*, institutional factors play an important role. The subject is taught in a block of two hour lectures and one tutorial

per week. The assigned rooms have, in the past, been too small and too inflexible to allow changes in instructional style during the lecture block while the dependence of students on lecturer notes means they are unwilling to surrender a passive style of participation. Whether a two hour block of lectures is optimal is difficult to determine in the absence of hard evidence or careful study, although a recent study of performance in a financial management course indicated that there is a clear difference in student pass rates for different class schedules. Henebry (1997) concluded that students concerned about passing the course on their first attempt should seriously consider registering for a class section meeting three times a week and that even a twice-a-week schedule appears better than one night a week. The use of tutorials is designed to provide active participation although the size of tutorial groups is large and students remain passive learners even in a more informal setting. Re-inforcement of the higher order thinking skills such as application, analysis, synthesis and evaluation requires a project or an essay to analyse a problem in the *economics of financial markets*.

What type of communication is necessary in the classroom is determined to a large extent by the class size and type of class room. With a class size of greater than 50 and inflexible rooms, communication will be synchronous with both lecturer and students being present at the one time. Opportunities for asynchronous communication in which there is a delay between the sending and receiving of information are available through use of technology such as email, posting notices and notes on a webpage or by leaving hard copy information at a central depot (the student resource centre)⁵. Provision of adequate resources for students to master the required tasks is made by tutorials and formative assessment. A technique which has high set-up costs for the lecturer is computer managed learning⁶.

The use of technology is decided on many grounds including the availability of computer facilities and cost of using that technology, particularly the cost to the lecturer. Readily available technologies are the webpage, which is maintained by the School, bulk email to students maintained by the University and presentation software. Whether there is any substantial difference in student outcomes is difficult to determine, although it is a fundamental student article of faith that anything which does not appear on a PowerPoint slide is not worth knowing and can be safely ignored, if not treated with contempt. Beets and Lobingier (2001) report that there is no overall difference in student learning between three classroom pedagogical techniques; these are presentation software, an overhead projector and a chalk board. In general, students in their study, taught by each of these methods, performed at much the same level.

According to Mitchlitsch and Sidle (2002), economists – when compared to a number of business school disciplines – focussed on outcomes rather than process. The results of the survey are shown in Table 1 below:

⁵ Another technique is video instruction; an earlier application is explained in Stanford and Laaser (1984).

⁶ See Stanford and Cook (1987) and Stanford (1988).

TABLE 1
**FOCUS OF METHODS FOR DETERMINING STUDENT LEARNING
 IN THE CLASSROOM, BY PERCENTAGE OF RESPONDENTS**

Faculty Members %	Process	Outcomes	Both
Economics	6	54	40
All Disciplines	8	44	48

Mitchlitsch and Sidle (2002) further found that economists used tests and examinations to a larger extent than members of other disciplines as shown in Table 2 below:

TABLE 2
**METHODS USED TO DETERMINE STUDENT LEARNING IN THE
 CLASSROOM, BY PERCENTAGE OF RESPONDENTS**

Faculty Members %	Reports/ Papers	Presentations	Projects	Case Studies	Tests/ Exams
Economics	10	4	11	4	59
All Disciplines	8	5	13	15	43

The principles of assessment adopted for the design of *The Economics of Financial Markets* were that standard techniques of assessment should be used, but the calculation of the final grade for the course should be flexible incorporating a number of options, with the goals of easing student anxiety and providing incentives to undertake more work. The underlying principle of assessment is that students should not lose by doing more assessment. Assessment involves some degree of choice by students. How this was done is explained later.

5. DESIGN OF THE SUBJECT

(a) Content

The first step in the design of the subject is to determine the content of the subject and its categorisation; the content is divided into four components:

- (i) Overview of Global Financial Markets which explains the development of Global Financial Markets; major developments in the international financial system e.g. the formation of the European currency union; the present structure of international and national financial markets.
- (ii) Standard Analytical Procedures, STAPs, which consist of a number of questions to be asked in order to define the important characteristics of financial securities (i.e. financial assets or the modern jargon term, "financial products" or financial markets. The questions used in each STAP embody individual concepts each of which needs to be explained to and understood by students.
- (iii) The third component of the subject requires the application of STAPs to individual markets and individual securities.

(iv) the fourth component of the subject involves consideration of issues which are important in the economics of financial markets; the major issues are the efficiency of financial markets in terms of operational, allocational and dynamic efficiency; the relationship of financial variables to real activity (eg how does a sustained rise in equity prices affect economic activity, how does a substantial change in the exchange rate affect economic activity). Other issues are the optimal international diversification of financial assets and how financial markets can be used for risk management.

The more innovative aspect of the design of the subject involves the use of Standard Analytical Procedures, STAPs, which are developed to aid analysis of both securities and of financial markets. The STAPs are a listing (or a check list) of characteristics of assets and markets which can be applied to each security and market providing a focus for the essential features of assets and markets. The STAP for securities is shown below together with an explanation of why the questions are included in the check list. The use of the STAP commences with the discussion of the characteristics of securities and financial markets; the lectures in this area of the subject focus on concepts, the range of possibilities and the economic importance of each characteristic. Once this ground has been covered it is then possible to combine the elements into the STAP. The general approach to the STAP for a security is shown below.

STANDARD ANALYTICAL PROCEDURE - SECURITY

Following Blake (1995)

Characteristic:	What is revealed by the answer to the question
<i>Who is the issuer?</i>	Is the issuer a government or private issuer; the risk characteristics will differ.
<i>What type of security is it?</i>	The major classifications of securities is : Debt, Equity or Hybrid.
<i>Is it derived from another security?</i>	Is it an option, a forward or futures contract?
<i>What is the currency of denomination?</i>	The classification is domestic, international or euro-currency.
<i>When are income payments made?</i>	Regular income payments eg six monthly, or none as in "Bullet Bonds".
<i>What is the maturity of the security?</i>	A major classification is between a money market (with original term to maturity of less than 12 months) or a capital market security (more than 12 months). This distinction is important in determining the technique to price the security.
<i>What degree of liquidity does the security possess?</i>	What is the ease with which the security can be sold for cash?
<i>Does the security possess nominal capital value certainty?</i>	Is it a deposit type security or an equity type security eg a bank deposit or a mutual fund share?
<i>What is the degree of reversibility of the security?</i>	What is the cost of selling and repurchasing the security? This gives an idea of the spread or margin.

A completed STAP for a particular security, a domestic government bond, is shown below:

STANDARD ANALYTICAL PROCEDURE – DOMESTIC GOVERNMENT BOND

Characteristic:	
<i>Who is the issuer?</i>	The central government in the domestic economy.
<i>What type of security is it?</i>	Debt.
<i>Is it derived from another security?</i>	No; it is, on issue, a primary security.
<i>What is the currency of denomination?</i>	domestic.
<i>When are income payments made?</i>	Regular income payments, so it is a coupon security.
<i>What is the maturity of the security?</i>	Five years; so it is a capital market security.
<i>What degree of liquidity does the security possess?</i>	High.
<i>Does the security possess nominal capital value certainty?</i>	Yes; it promises to a specified amount on maturity and specified rate of interest each six months.
<i>What is the degree of reversibility of the security?</i>	Margins are generally low, so the degree of reversibility is high.

The use of a STAP for securities allows students to apply this to each of the major securities considered in the course; the use of a STAP should be efficient as it proceeds from the general to the particular.

Financial markets are distinguished, first, by the securities traded in them and secondly by other characteristics as shown in the STAP for financial markets as shown below. Preceding the use of the STAP to analyse financial markets is the discussion of the concepts involved in the questions which make up the STAP. Also dealt with in detail is the range of possible answers to the questions in the STAP. The general nature of the STAP for financial markets is shown below.

STANDARD ANALYTICAL PROCEDURE – FINANCIAL MARKETS

Characteristic	What is revealed by the answer to the question
<i>What is the major security traded?</i>	Debt, equity, hybrid, derivative.
<i>What is the type of market?</i>	Primary, Secondary, Exchange Traded, Over the Counter (OTC).
<i>Who are the major participants?</i>	Buyers and Sellers.
<i>Who are the intermediaries?</i>	Brokers, Dealers.
<i>What is the method of Price Discovery?</i>	Tender, Open Outcry, Computer Trade Execution.
<i>How is the market regulated?</i>	Self regulation; external government regulator.
<i>What is the market indicator?</i>	A summary indicator of market activity.
<i>How are prices determined?</i>	What are the economic factors which determine prices in the market.
<i>What is the relationship to the real sector?</i>	Does change in financial variable affect aggregate economic activity?

A completed STAP for the Australian Stock Exchange is shown below:

**STANDARD ANALYTICAL PROCEDURE – AUSTRALIAN
STOCK EXCHANGE**

Characteristic	
<i>What is the major security traded?</i>	Equities.
<i>What is the type of market?</i>	Secondary.
<i>Who are the major participants?</i>	Buyers: Domestic and International funds managers, households, individual non-residents Sellers: similar to buyers.
<i>Who are the intermediaries?</i>	Stock Brokers.
<i>What is the method of Price Discovery?</i>	Computer Trade Execution.
<i>How is the market regulated?</i>	Self regulation and external government regulator, the Australian Securities and Investment Commission.
<i>What is the market indicator?</i>	S&P 200 index.
<i>How are prices determined?</i>	Expected earnings.
<i>What is the relationship to the real sector?</i>	Change in share price index will affect consumption and investment expenditure.

The fourth component of the subject involves consideration of issues which are important in the economics of financial markets. This part of the subject requires specific knowledge of individual securities and markets and now uses this knowledge in economic analysis of specific issues. Two key issues are whether the financial markets are efficient and the standard concepts of operational, allocative and dynamic efficiency are used. The second key issue is how financial markets affect the real sector of the economy; in the subject, two markets – the foreign exchange market and the equities market – are regarded as important. As the subject is concerned with international financial markets other issues are critical. These include risk management, international diversification of assets and the international transmission of economic change through financial markets.

(b) Assessment

The individual assessment items for the subject are standard but the innovative feature providing for flexibility is how the results for individual items are combined to provide a final grade for the subject. The items in the summative assessment are: two class tests; one final examination and one essay, while the items in the formative assessment are tutorial questions (which test the ability to undertake more complex financial calculations) and quizzes on each module. The two class tests are used to examine recall and numerical calculation and simple analysis. The essay is one which is designed to test student ability to analyse a more complex matter (such as financial crisis in a market). The final examination is an unseen two hour examination which is designed to test the higher level analytical skills.

The determination of the final grade for the course is by combination of

numerical scores on the various items of assessment to give an aggregate score which is translated into grades by application of a standard formula. There are five options for determining the final grade; each option is calculated for each student and the highest score is selected. Students may do all the items of the summative assessment but are required to sit only one class test and the final exam. The requirement to sit one class test is to provide information to both students and lecturer about their progress in the subject while the requirement to sit the final examination is to ensure students are assessed on the whole course.

ASSESSMENT OPTIONS – WEIGHTING OF INDIVIDUAL COMPONENTS

	Class test 1	Class test 2	Essay	Better Class test	Final Examination
Option One	0	0	0	0	100
Option Two	25	25	0	0	50
Option Three	0	0	25	25	50
Option Four	0	0	50	0	50
Option Five	25	25	25	0	25

The rationale of the options for final assessment is that students are allowed to match their preferences for assessment, their attitude towards risk and their workload. We would expect students with high risk aversion to undertake all assessment tasks while those with a confidence in their own ability and a heavy workload would take the 100 per cent examination load. This approach also allows flexibility for students; a failure to sit for a class test or to submit an essay is not a serious problem (or a reason to sit a make-up test) as they can retrieve the position with another piece of assessment. Options in assessment have a desired feature of reducing student anxiety about assessment; in general, students feel the system is fair and student friendly. The underlying principle of the options is that students cannot do any worse by undertaking more assessment which is another factor in reducing student anxiety about assessment. The options approach to assessment would improve the chances of obtaining a passing grade. However, the chance of obtaining a *high* grade depends on a good performance in the final examination. It is possible to obtain a *passing* grade without attempting the final examination.

6. CONCLUDING COMMENTS

This paper reports how established principles of pedagogy and economics have been applied to the design of the subject, *The Economics of Financial Markets*, as a conversion Masters subject and as a subject for other Masters courses. The design emphasises the need to specify the content of the subject and to identify the economic intent of the subject. The subject design provides some economic organising concepts in order to distinguish *the economics of financial markets*, the central focus of the subject, from *financial markets*, the focus in finance courses. The innovative aspects of the design of the subject are the use of Standard

Analytical Procedures, STAPs, to ensure basic information about securities and financial markets are acquired efficiently by students. This then allows for analysis of important economic issues. The second innovative aspect of the design is the use of five options in the determination of the final grade for the subject. Assessment under this design is more flexible, is more likely to reduce student anxiety about assessment and the subject but at the same time requires high level achievement over the whole subject to obtain a high grade, thus maintaining economists' demonstrated preferences for examinations in assessment. The design of the subject takes into account the constraints placed on the subject by timetabling and allocation of rooms. Overall, the design of the subject should provide for more efficient learning by students and less student anxiety.

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