

USING THE TECHNOLOGY OF SIMULATION TO TEACH GOOD BANKING PRACTICES

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Abstract

The credit crisis that has evolved into a global financial crisis has its roots in the poor or non application of proper credit principles in the assessment of loan applications. The issue of sub-prime loans to applicants that had no ability to repay was the root cause of the domino effect that led to a loss of confidence in the banking sector that in turn brought about a total economic downturn. The importance of proper banking practices has been highlighted in a way never thought possible a couple of years ago. The focus of this paper is on the training of future credit grantors who will be on the coal face of taking lending decisions. This in turn will dictate the soundness of the banking sector and that in turn the strength of the economy. The current practice is to teach how to assess loans and applying other credit related activities using text books and cases. This paper examines and describes the merits of the alternative method presently being developed. This method entails using situated learning to enhance the learner's ability to grant loans when the correct criteria have been met and to reject loans when they are not and to consider the risk of stand-alone credit transactions within the context of a total credit portfolio. It employs a mix of real-life situations based on case histories gleaned from prior loan outcomes in order to equip future credit grantors with the know-how to make the right decisions. The purpose of the situated learning is to align the theory of sound banking practice more closely to the cut and thrust of real world credit applications where mistakes are costly and rarely forgotten.

Introduction

Banking has gone full circle in the way that it does business. Banks were until the mid 1990's primarily a collection of branches run by bank managers with lending decision autonomy to certain levels who reported to a head office that approved/declined transactions that exceeded the decision levels of branch managers. Local community familiarity and accessibility became an obstacle to healthy loan books for banks. Modern management techniques and the desire to improve objectivity and reduce costs while stripping out mid-level management led to the demise of the branch bank managers who were replaced by clerks who channelled credit applications to centralised loan centres. Local knowledge and the personal touch were forgone in the hunt for loan book improvement and cost reductions. Notwithstanding the changes bad loan decisions still

increased and led to worse loan books. The 2007/2008 credit crisis has led to a re-focus on the branch bank manager model which is being reintroduced by major banks. This creates the need to train up a new wave of branch managers who will progress through the banking system in time. They will need to know how to handle credit applications at all levels. The required training must address the need for multi-level knowledge. The situated learning model being developed is designed to impart the needed skills starting at branch level and then progressing through to credit portfolio management, thus mimicking the expected progression of the bank staff and providing learners with a comprehensive understanding of the interrelationship between all credit related activities and major other banking risks.

Sub-prime lending can be regarded as non-compliance to due diligence in lending. In this regard the major international and Australian banks reported financial losses due to bad debt that impinged on their bottom line results. It is therefore realistic to accept that bank lending practices require substantial revision and improvement to mitigate a repetition of a similar financial crisis situation. One component of credit risk management that banks have to address is the necessary skills and knowledge needed to comply with good lending practices and this can only be addressed by providing them with a proper training and education. Education and training in this regard is conducted by tertiary institutions, external consultants and institutions and in-house by banks. The use of comprehensive bank lending simulations is a recommended solution to the knowledge gap since it does not only address the how but also the why of good credit practice. The model is presently being developed for implementation in bank lending education for both undergraduate and postgraduate students at Curtin University of Technology Australia. The situated learning combines theoretical knowledge with practical application by exposing students to practical lending scenarios and thus providing them with comprehensive learning experiences.

The Fallout from Poor Bank Practices

The crises that started in the sub-prime mortgage market of the USA extended to a broader financial markets crises and global economic downturn. In this regard some major Australian banks reported big bad loan induced losses. Of all banks around the world only 13 have the highest AA rating. Four of those are Australian banks and yet they have suffered large write-downs (Murdoch, 2009). Australia and New Zealand Banking Group (ANZ) in February 2008 announced an additional individual provision of \$A 220 million on a troubled credit protection exposure emanating from a USA insurer who came under severe financial pressure (Lekakis, 2008). In July 2008 ANZ flagged total bad debt provisions for the financial year that ended on 30 June 2008 as close to \$A2.2 billion, due to the slowdown in the economy and losses from corporate failures but not from an exposure to the troubled USA property market (Australian Associated Press, 2008). The National Australia Bank (NAB) at the same time announced a \$A 830 million bad debt provision charge based on a portfolio of complex collateralized debt obligations partly linked to risky USA sub-prime mortgages (Australian Associated Press, 2008). This publicity about the increase in the credit risk of large Australian banks was

confirmed in their 2008 annual financial reports. As such the bad loan provisions of ANZ increased with \$1.426 billion (373 per cent) since 2007; that of Commonwealth Bank of Australia (CBA) doubled from \$434 million to \$930 million; NAB had the worst increase in bad debt provisions of \$1913 million; Westpac's bad debt provisions increased from \$482 million to \$931 million, and the bad debt provisions of St George Bank, the smallest of the large banks, increased from \$178 million to \$291 million (ANZ 2008; CBA 2008; NAB 2008; St George Bank 2008; Westpac 2008).

The aforementioned bad debts have a serious impact on the bottom line results of Australian banks and can to some extent be regarded as self inflicted. For this reason the appropriate training of bank loan grantors is critically important.

Supporting Literature from Previous Studies

The benefits of case based learning have long been espoused in studies, such as the one by Resnick (1987) who pre-empted "situation learning", as case studies are now known. He proposed that "bridging apprenticeships" be designed to bridge the gap between the theoretical learning in the formal instruction of the classroom and the real life application of the knowledge in the work environment. This practice is used in Australian schools who have introduced the "in-step" program. This entails students being taught at senior school all the topics they need for their future careers and being released one day a week to work in their chosen career. This pre-apprenticeship is arranged with suitable employers who have been screened as offering the best experience in the student's chosen field of work. The 'try before you buy' approach suits both the student and prospective employer. This situated learning approach is supported by studies of McLellan (1991) and Chiou (1992) who espouse a role for computer based technologies enhancing the apprenticeship style learning in schools. Computers can create real life scenarios without compromising too much reality and the latest advances in technology are closing the gap between reality and realism. Usage of flight simulators in the training of pilots is a well known situated learning tool in this regard. Integration of theory and situated learning is also supported by research done by Lave and Wenger (1991) who noted the move towards acceptance of integrated apprenticeships in the teaching methodology that has been trialled at the Institute for Research on Learning in Palo Alto, California.

Young (1993) proposes that the assessment of courses should be tailored to fit the course so that integrated courses with practical content must have an appropriate assessment. Thought must be given to designing the assessment so that it covers all the learning processes, not only the academic content. Jones (2002) goes further by saying the learners constitute their own learning situation from the available resources which themselves change with the advances in technology.

McLellan (1994) promotes the approach that knowledge must be learnt in context. He emphasises that context should be a realistic 'surrogate' of the actual workplace. He also sets out the steps needed in an integrated approach as follows: apprenticeship – collaboration – reflection – caching – multiple-practice – and finally articulation of

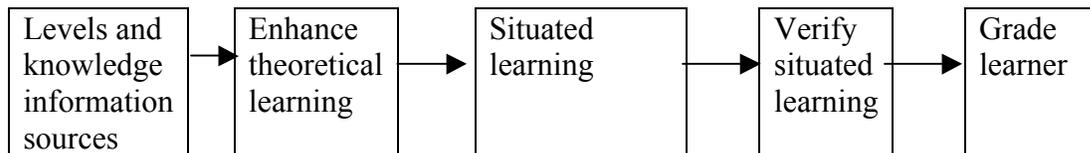
learning skills. This is very much aligned with the in-step program mentioned above. Prosser (2004) focuses on the student learning perspectives when taught using the problem-based teaching model. The positive aspects of situation learning have led to the University of Notre Dame in Perth teaching medicine to postgraduate students using case based learning as the core method of structuring their courses.

Harvard Business School has long been an advocate of case based learning and has compiled a set of real life business cases that it uses in many of its subjects (Harvard Brief Cases in Finance, 2009). These cases and the proposed solutions to them have been published and adopted by many institutions as a learning tool. Bruner (2009) has similarly published a book *Cases in Finance* that is an alternative to the Harvard Business School publication.

Teaching Methodology

Based on the information about the teaching of lending by banks and the availability of text material it was decided to construct new text material supported by practical application examples and case study scenarios to attain the learning outcomes of the bank lending unit in e-teaching format that will provide learners with all the required knowledge and situated learning in interactive multimedia to attain the learning objectives of the unit. Consultation with online teaching experts resulted in the construction of the e-teaching model for the unit depicted in Figure 1.

Figure 1: E-teaching simulation model for bank lending



The content structure and sequence of the situated learning e-teaching model for bank lending (refer to Figure 2) firstly provides students with an overall understanding of banking and risk management in general to enable them to grasp where and how the individual components of credit risk management fit into bank operations and why the professional management thereof is extremely important. Thereafter all the individual components are covered and finally pooled in credit portfolio management that represents the consolidated management of all individual components.

The whole thrust of the new teaching style is to blend the theory of disbursing loans with the practicality of the real world. Neither is exclusive nor complete without the other. As Brown, Collins and Duguid say “learning methods that are embedded in authentic situations are not merely useful; they are essential” (1989, p. 35). This viewpoint was adopted and taken to the next level by using the technology available today. The

commercial world cannot afford to have another meltdown in the banking system and good lending practices are more than essential in keeping banks healthy.

Overall Perspective — Wide Ranging Introduction

A shortcoming of education and training in the banking sector is that it is aimed at providing staff with sufficient knowledge and skills to perform their jobs adequately, but it ignores the importance of providing staff with an understanding of the integrated banking environment to establish a framework for staff of how the bank operates; key issues of importance to the bank; where the staff fit into the organization; and how their key performance areas relate to other bank activities and the bottom line results of the bank. An effective credit culture exists when the behaviour of every individual in the bank is closely aligned with bank management objectives and priorities (Hogan et al., 2004). The essence of this issue is that satisfactory credit culture cannot be expected from staff members who only know how to do their jobs but are not familiar with the main activities of the bank; organizational structures; major risks; and how their activities contribute to the objectives and priorities of the bank and affect the operations of the bank.

The teaching experience with full-time university students who enrol for the unit in bank lending show that most of them, if not all, have only accessed retail bank branches to conduct ordinary banking transactions like opening accounts and do fund withdrawals. Furthermore, many of the students are from countries where banking exposure of the majority of the population is only in terms of saving accounts. The concept of banking, bank lending activities and decisions emanating from it are therefore very abstract to students. This situation requires teaching that fills up major knowledge gaps and exposes students to practical bank lending situations to provide them with a concrete understanding and application ability.

The overall perspective content of the e-teaching model is reflected in Table 1. It considered the limitations of the teaching conducted by banks, the experience profiles of fulltime students, and possible solutions to resolve it.

The overall perspective (wide ranging introduction) itself has a funnel flow of information since it starts off with banking and risk management in part 1A followed with credit risk management as inherent part of it in part 1B.

The learning outcomes for part 1 are very cognitive (analysis, synthesis and evaluation based) since the intention is to provide learners with a comprehensive understanding of the environment in which lending takes place, risk management in general, the different risks that bank face and specific credit risks.

The situated learning exposure of learners is from scenarios and case studies based on the actual learning objectives that have been compiled and consist of simulated situations and issues that may require decision making in practice.

Table 1: Part 1 — Overview of banks and risk management and introduction to credit risk management

Part 1A		Part 1B	
Knowledge and information	Learning outcomes	Knowledge and information	Learning outcomes
The role of banks, main activities and organizational structures	<p>After completion of this section learners should be able to:</p> <ul style="list-style-type: none"> • Explain the three key functions that banks perform in the complicated economic macro-environment and compare different types of banks and different countries in this regard. • Debate the advantages of the key functions of banks considering the start of the global financial turmoil in 2007 considering different types of banks and economic systems. • Explain the major market segments that banks can focus on and compare these market segments in terms of profitability and risk in general. Determine the market segments of existing banks to interpret and compare their focal points and to verify the existence and sizes of these market segments in banking operations. • Explain the main organisational functions that support the main bank operational divisions and argue their importance with regard to different types and sizes of banks. 	Major bank risks and essential components of credit risk management	<p>On completion of this section learners should be able to:</p> <ul style="list-style-type: none"> • Assess risk scenarios and correctly allot the scenario risks to the correct major bank risk category. • Analyse credit risk scenarios and explain the interrelationship of the specific credit risks with other major risks. • Analyse major risk scenarios and explain the interrelationship thereof with credit risk. • Analyse credit risk scenarios and explain what components of the credit risk management process are meant to manage the risk and whether it can be regarded as risk evaluation or control methods. • Construct a flow chart that indicates the sequence according to which the different credit risk management process components should be applied in a bank.
What is risk, the classification of risk, and the generic risk management process	<p>On completion of this section learners should be able to:</p> <ul style="list-style-type: none"> • Analyse and interpret risk in terms in predicting of outcomes for different levels of uncertainty. • Classify risks correctly for different types of organizations/industries. • Interpret and judge the effect/importance of different risk categories on different organizations. • Identify risks for different organizations/industries. • Evaluate risks in terms of frequency and loss sizes and determine potential losses. • Categorise risks according to the classification matrix for potential losses. • Determine the most appropriate alternative for the management of different risks. 	Credit objectives, strategies and controlling measures	<p>On completion of this section learners should be able to:</p> <ul style="list-style-type: none"> • Assess and change bank credit portfolio objectives considering the prevailing credit risk exposure of a bank as well as other micro and macro environment variables. • Evaluate credit policies and procedures within the context of a bank's credit objectives and make recommendations on how to improve the policies with regard to alignment with credit objectives, the topics that it should address, and the clarity of procedures and underwriting guidelines.

Detailed Learning — Individual Components

Part 2 of the e-teaching is focussed on stand-alone credit transactions that represent the micro-side of credit risk management. This part is subdivided into three subgroups

namely key elements of all stand-alone credit transactions (part 2A), consumer and business credit assessment (part 2B) and the management of existing advances/loan transactions (part 2C).

The situated learning in this part exposes learners to the actual operational lending environment with scenarios and case studies that require them to perform all activities that they may encounter at bank branch level and in certain specialised credit risk departments (refer to table 2).

Table 2: Part 2 – Stand-alone credit transactions

Part 2A		Parts 2B and 2C	
Knowledge and information	Learning outcomes	Knowledge and information	Learning outcomes
Loan pricing	<p>On completion of this section learners should be able to:</p> <ul style="list-style-type: none"> Calculate a hurdle rate that loans of a bank should comply with by using risk adjusted return on capital (RAROC). Calculate interest rates for specific customers/groups of customers based on the hurdle rate of the bank, prevailing credit portfolio defaults and future default expectations. 	Consumer credit risk assessment	<p>On completion of this section learners should be able to conduct the proficient assessment of consumer loan applications.</p>
Regular forms of finance provided by banks	<p>On completion of this section learners should be able to:</p> <ul style="list-style-type: none"> Match the needs of a customer with the most applicable form/s of finance and substantiate the reason for the match. Calculate repayments for mortgages; loans and instalment credit; leases; and factoring; Calculate the discounted value of a bank bill Calculate the cost of factoring and compare the cost thereof with other forms of finance 	Understanding and interpreting financial statements of businesses	<p>On completion of this section learners should be able to:</p> <ul style="list-style-type: none"> Apply ratio analysis and interpret the ratio analysis results correctly. Construct historical cash flow statements and cash flow budgets and apply sensitivity analysis to cash flow budgets. Identify creative accounting and overtrading from information contained in the financial statements and cash flow budgets of businesses. Compare businesses in terms of financial and business risk. Identify off-balance sheet items that may affect the repayment ability of businesses and substantiate the effect of it.
Different forms of collateral	<p>On completion of this section learners should be able to:</p> <ul style="list-style-type: none"> Compile a checklist of practical aspects that must be considered when taking collateral for loans/advances. Apply criteria to rate any type of collateral as “acceptable” or non-acceptable”. Identify different forms of collateral available from customers by scrutinizing financial information and considering other general information. Provide estimated actual values to different types of collateral based on actual customer information. 	Business credit risk assessment	<p>On completion of this section learners should be able to conduct the proficient assessment of business loan applications.</p>
Principles that bank apply when dealing with credit applications	<p>On completion of this section learners should be able to:</p> <ul style="list-style-type: none"> Recall all the principles applicable to dealing with credit applications and forms of information pertaining to it. Determine the forms of information required for different credit applications and specify where it will be obtained from to assess the credit risk of a transaction. analyse information obtained about customers applying for credit, comment on the credit risk effect of it, and recommend actions/ decisions that the bank should take. 	Existing loan account management	<p>On completion of this section learners should be able to assess the risk of existing loan accounts and decide on ways to manage the accounts to minimise the risk exposure of the bank.</p>

Overall Management

The third and last part of the e-teaching model focuses on the management of credit portfolios. It requires that learners have a good overall perspective (part 1) as well as good knowledge regarding the risk posed by each stand-alone credit transaction (part 2) as it combines all the knowledge attained in those parts with additional knowledge to

apply in credit portfolio management. Part 3 focuses on the overall management of credit risk in banks (refer to Table 3) and provides learners with a good understanding of how the assessment of stand-alone credit transactions and the management thereof implicates the total credit risk of banks. A more integrated perspective is also created since credit portfolio management and its interrelationship with other bank risks, that have been addressed in part 1, is restated.

Table 3: Part 3 – Portfolio credit risk management

Part 3	
Knowledge and information	Learning outcomes
Analyzing of credit portfolio information	On completion of this section learners should be able to: <ul style="list-style-type: none"> • Construct and apply a logical methodology for the gathering and analysis of credit portfolio information. • Identify intrinsic and concentration risk and propose less doubtful portfolio exposures based on the comparative exposure of peer banks and credit risk variable correlation. • Apply basic credit risk stress testing. • Apply the Actuarial Credit Risk Accounting provisioning method.
Credit portfolio risk transfer methods	On completion of this section learners should be able to apply and do cost and benefit calculations for each of the credit portfolio risk transfer methods discussed in this section.

Conclusion

The consequences of bad lending practices that led to the Global Financial Crises in 2007 are still being felt today, since the ramifications to the lending industry and economies of countries as a whole are still working through the system. If ever there was a doubt that sound financial practices are the cornerstone of a healthy economy, then they have been dispelled with the latest negative ongoing ripples in the financial world that are defying the quick fixes being applied.

Bankers are too focused on partial segments of job performance since a shortcoming of education and training in the banking sector is that it is aimed at providing staff with sufficient knowledge and skills to perform their jobs adequately, but it ignores the importance of providing staff with an understanding of the integrated banking environment to establish a framework for staff of how the bank operates. Text books, on the other hand, are normally written by academics with little or no exposure to the operational banking environment. The textbooks that are available do address a major part of the learning objective content identified for this unit although not in the same sequence and not with the focus on practical appliance.

A situated learning tool in the form of a bank lending simulator has been developed to address the perceived shortcomings in the training of the next generation of operational lenders, at all levels of an organisation, Its objective is to expose students to real-life lending situations that simulate similar decision making circumstances that they will encounter in the actual operational lending environment. The simulation is tied to the

previously taught theory and all facets of ‘learning and doing’ are brought together. The situated learning scenarios and case studies contain simulated actual operational environment variables to mimic as closely as possible the situations that students will face when they enter the workforce.

The situated learning model is designed to be a crossover for all the players partaking in the learning process. The focus on blending learning theory with real life cases is an attempt to marry all the knowledge into a simulation that is designed to bring the real world into the classroom.

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