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Financial literacy: a growing concern in modern society

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FINANCIAL LITERACY: A GROWING CONCERN IN MODERN SOCIETY

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Abstract
This paper highlights the ongoing need for financial literacy research in a rapidly changing society with deregulated markets, new financial products, ready availability of credit and an emphasis on self-reliance. A discussion of the importance of financial literacy for both individuals and the economy is followed by a review of studies conducted in Australia, the United States and the United Kingdom. The studies are compared and analysed to determine areas of both commonality and inconsistency. As a result of this analysis, the paper presents recurrent themes that could be extended, together with potential new areas for financial literacy research.

Key Words: financial literacy, financial skills, financial understanding, personal finance
1 Introduction

The increasing importance of financial literacy was affirmed with the recent establishment of the Financial Literacy Foundation (FLF) by the Australian Government on 6 June 2005 (FLF, 2005a). The then Minister for Revenue and Assistant Treasurer, Mal Brough, declared that the goal of The Foundation was “to help Australians improve their financial knowledge and make better, more informed choices with their money” (Brough, 2005). This paper affirms the value of financial literacy, summarises the research to date and then analyses these studies in order to identify potential areas for further research.

The need for financial literacy has become more significant with the deregulation of financial markets and the easier access to credit as financial institutions compete strongly with each other for market share; the easy issue and ubiquitous acceptance of credit cards which has facilitated spending on consumption; the rapid growth in development and marketing of financial products, and the Government’s encouragement for its citizens to take more self-responsibility for their retirement incomes. Financial literacy skills enable individuals to navigate the financial world, make informed decisions about their money and minimise their chances of being misled on financial matters (Beal and Delpachitra, 2003; CBF, 2004b; Raven, 2005).

The implied definition of financial literacy in FLF’s declared goal (Brough, 2005) is almost identical to that provided over a decade ago by the UK National Foundation for Education Research who defined financial literacy as ‘the ability to make informed judgments and to take effective decisions regarding the use and management of money’ (Nector et al, 1992). A number of later financial literacy studies have also adopted this definition and some have even extended it in order to reveal and incorporate a more
detailed description of the components underlying their concepts of what it means to be financially literate. For example, the Commonwealth Bank (CBA)’s definition of financial literacy includes “the ability to balance a bank account, prepare budgets, save for the future and learn strategies to manage or avoid debt” (CBF, 2004a, p. 1). The ANZ Bank’s research on adult financial literacy in Australia describes the concepts of financial literacy as “about enabling people to make informed and confident decisions regarding all aspects of their budgeting, spending and saving and their use of financial products and services, from everyday banking through to borrowing, investing and planning for the future” (RMR, 2003, p. 1).

2 Importance of Financial Literacy

Financial literacy skills have become essential for Australians to be able to survive in modern society and cope with the increasing diversity and complexity of financial products and services available. Financial skills have rapidly grown important over the last decade because ‘financial markets have been deregulated and credit has become easier to obtain as financial institutions compete strongly with each other for market share’ (Beal and Delpachitra, 2003, p. 65). In addition, credit cards have become easier to obtain and are generally accepted as a means of payment for most goods and services. This, together with easier access to personal loans, interest free and other payment options, has led to an increase in spending on consumption and a rapid rise in both personal and household debt levels. A report from the Reserve Bank of Australia (RBA) confirms this rapid rise in debt. In June 1990, the ratio of household debt to disposable income in was almost 1 to 2 or 46 percent; by June 1995 this ratio had risen to around 1 to 1.5 or 68 percent, and by June 2005 this ratio had further risen to 1.5 to 1 or 150 percent (RBA 2005, pp. 10-11). Moreover, the development and marketing of financial products and services has grown rapidly and consumers have been
encouraged to invest and purchase by means of the internet as well as to pay bills, make loan repayments and even apply for credit online.

Another major issue that has highlighted the need for financial literacy skills is superannuation and the importance of planning for retirement since ‘governments worldwide are moving down the path of encouraging their citizens to take more responsibility for their retirement incomes and to move away from public pensions’ (Beal and Delpachitra, 2003, p. 65). As a consequence, people need to be more knowledgeable about superannuation funds and how they operate, including an understanding of their employer’s responsibility to contribute to their chosen superannuation fund, and their own responsibility to contribute, as well as the many options that are available to them (Abetz, 2005). In particular, young people need to understand the basics of investing and planning for the future, including the relationship between risk and return and the diversity between short-term and long-term investments, and the ramifications of not planning adequately for their retirement.

Having financial literacy skills is an essential basis for both avoiding and solving financial problems, which, in turn, are vital to living a prosperous, healthy and happy life (CBF, 2005b, p. 4). Financial problems are often the basis for divorce, mental illness and a variety of other unhappy experiences (Kinnunen and Pulkkinen, 1998; Yeung and Hofferth, 1998). An American survey on divorce showed that 32.9 percent of women and 28.7 percent of men indicated that financial problems were one of the main reasons for their divorce (Cleek and Pearson, 1985). Similarly, a report from the Australian Institute of Family Services highlighted finances as a cause for divorce and concluded that it is possible that couples may not recognise that concerns about income or insecure employment may underline some of the stresses and tensions that contribute to
a relationship breakdown (Wolcott and Hughes, 1999). In addition, “financial hardship can increase isolation, emotional stress, depression and lower self-esteem, which, in turn, can generate or exacerbate marital tensions” that lead to divorce (Wolcott and Hughes, 1999, p. 10).

The importance of personal financial literacy skills and knowledge will continue to grow in the future as suggested by “trends in work patterns, demography and service delivery” (RMR, 2003, p. 2). Thus, financial literacy will continue to be a prominent research topic both in Australia and other countries and it is expected that the focus will lean towards the implementation and evaluation of strategies to improve the financial literacy levels of certain cohorts of populations where a lack of financial knowledge and skill has been identified by previous research (FLF, 2005b; RMR, 2003). Further, the high number of people with low levels of financial literacy presents a serious problem for both the economic well-being of nations and the personal well-being of such individuals (CBF, 2004a; Morton, 2005; RMR, 2003). Realistic and accurate benchmarks are needed for the ongoing measurement of financial literacy indicating the need for further research. In addition, continuing changes and advancements in technology, as well as people's short-term and long-term needs regarding saving, borrowing, investing, retirement, medical and insurance will provide further impetus for financial literacy research.

3 Australian Financial Literacy Studies

There are three published Australian studies on financial literacy. One focussed on a financial literacy amongst a sample of first year university students (Beal and Delpachitra, 2002). The other two were conducted by major banks (ANZ and CBA) and targeted financial literacy in the general population (CBF, 2004b; RMR, 2003).
3.1 The Beal and Delpachitra Study

The first Australian financial literacy survey was conducted in 2002 by Beal and Delpachitra (2003) on a sample of first-year students from the University of Southern Queensland across five faculties: Arts, Business, Education, Engineering and Surveying, and Sciences. Students studying psychology were also targeted, because the Head of the Psychology Department was interested in gaining an understanding of the levels of financial skill among psychology students. This arose from his awareness that many psychological problems in the community are connected with financial difficulties and that, as a result, practicing psychologists should have an understanding of personal finance issues (Beal and Delpachitra, 2003; Fogarty and Beal, 2004).

The survey was distributed to students in paper form and a total of 837 forms were completed, resulting in 789 having complete data sets. Five main skill areas were tested: basic concepts, markets and instruments of the financial markets, planning, analysis and decision making, and insurance. The methodology used to analyse the survey responses was very similar to that of Chen and Volpe (1998), where responses were marked and the proportion of correct responses for each question and each main skill area calculated. The major analytical method used was logistic regression modelling with a total of ten independent variables collected from the survey questions asking for demographic information and included faculty or major discipline o study, sex, type of household, age, education, occupation, employment status, workforce experience, income and risk preference. The dependant variable used in the model was defined by classifying respondents into two groups, high achievers and low achievers. This was done by dividing the data at the median, giving two groups of almost equal numbers of respondents. This dichotomous variable was then used as the dependant
variable in the logistic model. The same methodology was used to analyse the responses for each of the five main skill areas.

Results for the first main area of skill, ‘basic concepts’, show that the questions best answered asked about how saving is achieved, where students correctly answered in 97.1 percent of cases. The question that was worst answered in this area asked for the balance in a bank account where an initial $100 had been deposited for one year at 12 percent simple interest versus at one percent per month compound interest, in which only 52.9 percent of respondents answered correctly. Another poorly answered question in this area asked for the reason for diversifying an investment portfolio, in which only 58.5 percent of students answered correctly. These results indicate that simple concepts in finance such as, the effect of compounding interest and the relationship between risk and return, are not well understood by university students.

Results for the second main area of skill, ‘markets and instruments of the financial markets’, showed that the question best answered was one that asked about the nature of the liability undertaken when guaranteeing a friend’s loan. This question was correctly answered by 87.5 percent of respondents. The majority of the remaining questions for this main area of skill were poorly answered. Only 44.1 percent of students understood the role of the cash rate in the economy and only 36.7 percent of students were able to correctly identify which Australian asset class has given the best returns over the last two decades. These results strongly indicate that many students are not aware of common financial information that is widely discussed on a regular basis by every news media and by which information has a huge influence on the Australian economy.
Results for the third main area of skill, 'financial planning', showed that the best answered questions asked about the advantages of keeping a daily track of expenditure (91.1 percent of students answered correctly) and about the awareness of bank statements allowing them to keep abreast of interest rates and bank charges (85 percent of students answered correctly). The worst answered question, in which only 27.9 percent of students answered correctly, asked respondents to indicate the correct method of subtracting outstanding cheques from the apparent balance on a statement to achieve the actual balance. These results indicate that the majority of participating students have a poor understanding about the method of effecting a bank reconciliation, which in society today, where awareness of bank fraud has become more prominent, is a cause for concern.

Results for the fourth main area of skill examined, 'analysis and decision making', show that solving financial problems together with knowledge of insurance matters were the areas which students generally answered least well. The best answered question, where 64.5 percent of respondents answered correctly, involved mortgage-buster or savings offset accounts. The best method to rectify a persistent credit card debt was able to be identified correctly by 58 percent of respondents and only 43.1 percent of respondents were able to correctly solve a simple present value problem. The two worst answered questions involved an asset-rich, cash-poor person getting funds quickly for an urgent medical procedure (36.3 percent correctly answered) and a calculation of the best deal on a motor vehicle in which only 33 percent of respondents answered correctly. These results are of high concern as they show that many students, when faced with real-life financial situations, are lacking the knowledge and skills to be able to make the best decisions regarding individual circumstances.
The final main area of skill that was examined focused on insurance. Seventy seven percent of respondents were correctly able to identify the determinants of vehicle insurance premiums and around 57 percent understood the nature of insurance excesses, but only 42 percent were able to identify the risks covered by compulsory third party (CTP) vehicle insurance. The worst answered questions involved flood not normally being covered by householders' policies (31.6 percent answered correctly) and the nature of term life insurance, in which only 21.5 percent of respondents were able to answer correctly. These results indicate that while students appear to have a reasonable knowledge about vehicle insurance, many are lacking knowledge about other types of insurance, such as household and life insurance.

Analysis of the full model showed that the significant demographic variables were gender, work experience, income and risk preference. Students with higher financial literacy scores were more likely to be male, have greater work experience, have a higher income and have a lower aggregate risk preference. An analysis of the first of the five separate models showed that students with higher general financial knowledge and skills were more likely to be studying business, be male, work in a more highly skilled occupation and have more work experience. Overall, it was concluded that university students in Australia are not skilled, nor knowledgeable in financial matters and that this will tend to impact negatively on their future lives through incompetent financial management (Beal and Delpachitra, 2003).

3.2 The ANZ Study

In 2003, Roy Morgan Research conducted Australia's first national survey on financial literacy on behalf of the ANZ bank (RMR, 2003). There were two parts components to the study: a telephone survey of 3548 adults and an in-depth survey of 202 adults which
included a self-completion component and an interview of between sixty and ninety minutes each. The telephone survey consisted of 145 finance and 25 demographic questions. The finance questions were split into four headline categories, namely, mathematical and standard literacy, financial understanding, financial competence and financial responsibility. It was decided that knowledge should only be tested against an individual’s needs and circumstances and hence not all respondents were asked all of the questions. For example, if a respondent answered “no” to “do you own or use a credit card?”, then they would not be asked any questions relating to credit cards. The validity of this methodology is questionable for several reasons.

First, it is important for all consumers to have an understanding of financial products and services, even if they have not as yet been exposed directly to such products or services. Indeed, the primary reason that they do not have a credit card may be because they know little about credit cards, how to apply for one or how to use one. Secondly, a potential positive bias could be introduced into the results of the survey because if respondents are only asked questions about financial products and services that they currently use, then it can be expected that their knowledge of such products and/or services is somewhat higher than a respondent who does not use that particular product or service. This positive bias in results is evident when the overall findings of the ANZ survey are compared with those of CBA survey, with the ANZ survey showing more positive results overall resulting in the appearance of higher financial literacy levels. A third methodological weakness is that self-rating questions were used, which again, may introduce biases in the results of the survey. Thus rather than actually testing respondents’ understanding, the survey assessed only their perceptions of their understanding. Thus, a problem arises in the differences in perceptions between respondents: one respondent may believe that they understand something ‘very well’,
when in fact another respondent who answered 'not very well' may actually have a better understanding than the first respondent. An alternative approach to test respondents' levels of understanding would be to set a benchmark for the entire sample population by using 'exam-type' questions and for the interviewer to rate scores or marks accordingly.

Despite these limitations, the ANZ survey attempted to measure knowledge and understanding, behaviour, attitudes, perceptions and awareness as they related to the four categories mentioned above, rather than simply measuring skills. In addition, the chosen sample was highly representative of the Australian population, with confidence intervals of less than +/- 2% at the 95 percent confidence level.

To undertake the analysis, ten levels of financial literacy were used which were combined to form financial literacy quintiles, where quintile 1 was the lowest level of financial literacy and quintile 5 was the highest. Correlations, averages and percentages were also used to summarise results. The survey findings were that Australians overall are a financially literate society, but that certain groups have particular challenges that need to be addressed. Those groups were identified as those having a lower level of education (year 10 or less), those not working or in unskilled work, those with lower incomes (household income under $20 000), those with lower savings levels (under $5000), single people and people at both extremes of the age profile (18 to 24 year olds and those 70 yrs and over). In contrast, those who in the highest financial literacy quintile were people with tertiary degrees, professional and business owners, couples with no children and people aged between 45 and 59 years. Thus, despite individuals only being tested on the issues relevant to their circumstances and needs, a strong correlation was found between financial literacy and socio-economic status.
The overall findings of the survey show that 80 percent of respondents felt ‘well informed’ when making financial decisions. All respondents felt that they knew how to use cash, and around 90 percent felt that they knew how to use other methods of payment such as ATMs, cheques, EFTPOS and credit cards. Ninety-eight percent appeared to understand that prioritising different needs is required to balance income and expenditure within financial capacity and most people could suggest a range of appropriate strategies for dealing with a drop in income. In addition, 97 percent of respondents indicated that they were aware that their employers were required to make superannuation contributions on their behalf, while 91 percent understood that they could make additional superannuation contributions. Generally, consumers also seemed to have a good appreciation of some of their responsibilities, with 91 percent understanding the importance of making honest and complete disclosure of their needs and circumstances, and 89 percent appreciating the importance of PIN security and the consequences of breaching it.

This analysis of the data was extended by Worthington (2004) who used ordered logit models to explain the components of a consumer behaviour model, put forward by the Consumer and Financial Literacy Taskforce (2004) which hypothesised that decisions made in the financial services markets are made up of five elements; external events, socioeconomic background, personal characteristics, skills levels and choices of information. The overall findings of his analysis indicated that female, non-English speaking, unemployed and non-working respondents, farm workers and persons whose highest level of educational attainment was year 10, year 12 or technical education had the greatest likelihood of a low level of financial literacy.
3.3 The CBA Study

The CBA’s survey on financial literacy was the first study to investigate the strength of any link between financial literacy and outcomes for individuals and the Australian economy (CBF 2004a, 2004b). This was achieved in three phases. The first phase was a national telephone survey of 5000 Australians aged between 16 and 65, the second phase investigated the microeconomic effects of improving financial literacy and the third phase investigated the macroeconomic effects of improving financial literacy.

The national telephone survey consisted of 20 multiple choice questions and averaged 18 minutes in length. The survey was designed to test each respondent’s ability to make financial decisions, rather than testing knowledge of financial information, as well as to collect demographic information such as; personal finances, whether the individual had ever owned a business, personal and health history, and sources of financial knowledge.

The results of the survey showed that those who were unemployed have poor financial literacy skills. Also among this group are younger people (aged 16 to 20 years), males, students, people with lower levels of education, people with lower personal annual income (under $10 000), people with lower annual household income (under $50 000) and people who have never worked in paid employment. Participants with these demographic characteristics made up the 10 percent of respondents with the lowest financial literacy scores. Results of the survey also showed that people in older age groups displayed lower financial literacy, suggesting that financial literacy is not merely a function of age or experience.

The results also indicated that the higher an individual’s financial literacy, the lower the probability that they were unemployed. In addition, lower financial literacy was found to
have an impact on an individual's health. This included a higher incidence of persistent sleeplessness and a higher desire to smoke. In terms of debt management, lower financial literacy scores were significantly related to respondents being unable to pay their mobile phone, utility and credit cards bills. The survey also revealed that 85 percent of respondents primarily learn about managing their finances through experience or 'trial and error', and a significant proportion of respondents, 36 percent specified financial institutions as a source of financial knowledge.

The second phase of the study revealed that improvements in financial literacy "can result in lifestyle gains for individuals of all ages, across the whole community" (CBF, 2004b, p. 4). For those respondents with the lowest levels of financial literacy, the expected probability of unemployment was 14.3 percent, compared to 1.7 percent for those with the highest levels of financial literacy. Further, there was evidence that a modest improvement of the financial literacy of the 10 percent of respondents with the lowest financial literacy scores, would result in these people having an average increase in annual income of $3204.

The third phase of the study revealed that an improvement in financial literacy has the potential to create more than 16 000 new jobs boosting Australia's economy by $6 billion per annum (CBF, 2004b, p. 3). Other anticipated macroeconomic effects of improving financial literacy include strengthening of national savings, increasing both public and private consumption and creating more successful small businesses.

3.4 Comparison of the Studies

If the Phase 1 results of the CBA study are compared with the those of the ANZ study, the overall results of the latter are more positive. In other words, while the ANZ survey...
indicates that Australians are generally financially literate with certain groups of people who lack skills, the overall results of the CBA survey indicate that financial literacy in Australia is poor. The CBA results are consistent with the findings of Beal and Delpachitra (2003) who contended that financial literacy among Australian university students is poor. Despite these differences, the findings of all three Australian studies, and others conducted overseas, there is a definite lack of financial skills and knowledge among people with certain demographic characteristics and that this problem needs to be addressed by focusing on education, evaluation and monitoring of national education programs and other initiatives, as well as the ongoing maintenance of realistic benchmarks for the continuation of measuring financial literacy.

4. International Financial Literacy Studies

Financial literacy has become a prominent research topic in other countries, especially in the United States (US) and in the United Kingdom (UK), where a lack of financial skills and knowledge is evident from the results of various studies.

4.1 US Studies

One of the earliest studies on financial literacy in the US was a national survey conducted by Cutler (1997) who concluded that the American public was not well informed about financial matters, in particular, insurance, social security and health care. Mandell (1997), Huddleston-Casas et al (1999), Williams-Harold (1999), the National Council on Economic Education (NCEE, 2005) and the Jump$tart Coalition (2005), all investigated financial literacy levels among US high school students and concluded that they showed a lack of both personal financial skills and knowledge. The recently released results of the 2006 Jump$tart survey reveals that although there was a marginal increase in the number of survey questions students answered correctly (from
52.3 percent in 2004 to 52.4 percent in 2006), growth has been extremely slow (Jump$tart, 2006).

Studies have also shown that university students in the US have inadequate knowledge on personal finance (Chen and Volpe, 1998; Volpe, Chen and Pavlisko, 1996). Chen and Volpe (1998) conducted a financial literacy survey involving 924 college students from thirteen colleges and that the overall mean percentage of correct scores was just 52.87 percent. The survey examined literacy across four main areas: general knowledge, savings and borrowing, insurance and investments. The study also attempted to investigate the relationship between literacy and the students' characteristics, and the impact of literacy on students' opinions and decisions. The results showed that the most poorly answered questions were those involving investments, while the best answered questions were those on general knowledge. Further, it was found that those students with a non-business major and who were female, in a lower class rank, under the age of 30 and with little work experience had lower levels of knowledge. The study indicated that these students with less knowledge were more likely to hold wrong opinions and make incorrect decisions.

Chen and Volpe (1998) used analysis of variance (ANOVA) techniques to demonstrate the variation in the levels of financial literacy among subgroups of students. In addition, logistics regression models were used to examine the financial literacy levels of students across different demographic characteristics. The participants were classified into two subgroups using the median percentage of correct answers. Students with scores higher than the median were classified as having relatively more knowledge and students with scores equal to or below the median were classified as having relatively less knowledge. This dichotomous variable was used as the dependant variable in the logistics model.
and the independent variables were represented by the demographic characteristic variables. This method of analysis was adopted by other researchers, including Beal and Delpachitra (2003).

Joo and Garman (1998) developed a questionnaire in order to investigate the relationship between personal financial wellness and worker job productivity. Their mail survey of 474 white collar clerical workers was conducted and it was found that personal financial wellness affects worker job productivity and this suggests that the potential effects of workplace financial education are positive for both workers and employers. However, a recent study on the financial literacy of US workers found that they too, had inadequate financial skills and knowledge (Chen and Volpe, 2005). A survey of 212 company human resource and benefits administrators was conducted, with a total of 68 questions focusing on the following:

1. the importance of various personal finance topics;
2. the level of knowledge possessed by employees;
3. if inadequate personal finance knowledge leads to a decline in productivity;
4. the use of a financial literacy test to screen new hires; and
5. the most effective approach to improve employee’s financial literacy in the workplace.

Company human resource and benefit administrators were selected because they are considered to be the most knowledgeable professionals about personal finance issues in the workplace. The results of the survey show that participants ranked all of the surveyed personal finance topics as important and that they believed that employees did not have adequate knowledge about these topics. Retirement planning was ranked as being the most important topic, followed by personal finance basics, insurance, company
benefit plans, taxes, investments and estate planning. Respondents identified that the least knowledgeable areas among employees are financial planning basics and retirement planning.

More than 55 percent of respondents that answered a question about whether inadequate personal finance knowledge leads to a decline in productivity, believed that this was the case, although few respondents recommended using a financial literacy test to screen potential employees. Results of the survey also showed that respondents believed that outsourcing to outside financial planners was the most effective approach to educating employees on personal finance.

Chen and Volpe (2005) asserted that importance of personal financial literacy in workplace results because of the national debate about social security reform, with the President’s call to allow workers to invest in stock and bond funds in their private accounts representing a fundamental change in the social security system. Chen and Volpe argue that for employees to be ‘better off’, they need to be financially knowledgeable in order to make informed investment decisions and to take advantage of the investment opportunities now available to them.

4.2 UK Studies

A number of financial literacy studies have also been undertaken in the UK, including Schagen and Lines (1996), AdFLAG (2000) and Brown (2004).

Schagen and Lines (1996) conducted a financial literacy survey of the general population on behalf of the NatWest Group Charitable Trust, but with a particular focus on four groups: young people in work or training (aged 16 to 21 years), students in
higher education living away from home, single parents and families living in subsidised housing. The survey questions focussed on the respondents’ attitudes to saving and borrowing, their use of financial institutions, money management in families and their confidence in dealing with financial issues. The survey also included questions which tested respondents’ understanding and knowledge of financial markets, financial instruments, financial decision making and problem solving, and financial planning. The results indicated that, in general, most participants were confident in their financial dealings. The notable exceptions were single parents, who were less committed to saving, and students, who were the least confident group in dealing with financial matters, with very few keeping any financial records. This lack of confidence evidenced by students becomes particularly significant in the light of the rising debt levels of university students in the UK (Graduate Prospects, 2005).

The Adult Financial Literacy Advisory Group (AdFLAG) undertook a study to determine “how to promote better access to financial education to young people and adults” (AdFLAG, 2000, p. 10) by collating relevant research, investigating areas of good practice, consulting with a variety of organisation across the public, private and voluntary sectors, and visiting organisations active in providing financial education programs to socially excluded people. They concluded that the need for financial literacy would continued to grow because individuals were expected to become more self-reliant. Added to this were the difficulties arising from changing work patterns, an ageing population, less government involvement and increasingly complex financial products. To this end, AdFLAG recommended that short term financial literacy education should be built around education, employment, housing, financial services and communication, with particular focus on needy population sectors such as older people, young people,
sole parents, ethnic minorities, people with disabilities and people living in social housing.

People for Action, while running five pilot housing projects to tackle financial exclusion, also managed to gain valuable insights into the financial literacy levels of those involved (Brown, 2004). In particular, they discovered that whereas there was certainly a lack of financial literacy, it was inappropriate, and somewhat meaningless, to attempt to deal with it in isolation for the practicalities of peoples’ lives.

5. Gaps in Financial Literacy Research

Studies of financial literacy targeting higher education students have shown that, in general, students with a business major are more financially literate than other students. However, no attempt has been made to examine business student’s financial knowledge and skills as they move through to the completion of their studies. It has been assumed that these students will gain higher financial literacy scores as they progress through to graduation, when in fact this may not be the case. In addition, there has been no attempt to examine the specific subjects or components that these students have studied, or to consider the marks obtained. Furthermore, no attempt has been made to compare financial literacy levels of students from different disciplines. All studies conducted so far simply use a dichotomous variable to represent major area of study (business or other), but it may be valuable to examine exactly what students are studying and to make comparisons against several disciplines and years of study.

Financial literacy studies focusing on general populations show that people with higher levels of education generally have higher levels of financial literacy, although there has
been no information about the type of educational attainment, the education institution, or the level of performance (other than completion).

Several financial characteristics have been included in most studies, including income, savings and debt, although little details are known about their structure and complexity and whether this contributes differently to financial literacy acquired over time. A number of studies reveal that personal financial skills and knowledge are acquired mostly through 'trial and error', hence it could be that extensive details of financial experience and characteristics influence financial literacy levels and would prove to be important covariates in modelling financial literacy among general populations.

Although the CBA’s study on financial literacy aimed to investigate the strength of any link between financial literacy and outcomes for individuals and the Australian economy, there has been no attempt in any financial literacy study to explicitly link financial literacy with financial behaviour. It is possible that certain aspects of financial literacy are more or less significant in an economic sense in determining good or bad financial behaviour, and consequently, high or low levels of financial success and sustainability of such success. For instance, it may be that having higher mathematical skills and numeracy rather than say, higher financial understanding, denotes a higher score for questions relating to investment calculations and decisions. Consequently, this higher level of mathematical skill and numeracy could signify those individuals who generally show superior financial behaviour and thus have better financial outcomes. It would be useful to determine specific components of financial literacy, that when combined with certain demographic characteristics, have maximal influence on the level of financial success.
Many studies have attempted to reveal the main sources of financial knowledge, although details of obtaining such information have been overlooked. For example, a respondent may indicate that their main source of financial knowledge is school, but it is likely that financial knowledge is gained from many other significant sources, both direct and indirect. Such sources include the internet; magazines and newspapers; television; radio; work; colleagues; friends and family, financial institutions and regulators.

In general, studies have shown that individuals with a higher level of education have higher levels of financial literacy; although all studies conducted targeting higher education students have actually revealed that these students have low levels of financial literacy. For example, Beal and Delpachitra (2003) conducted the first and only study in Australia targeting first-year university students, and found that financial literacy was poor. Similar results were found in the US (Chen and Volpe, 1998) and the UK (Schagen and Lines, 1996). Assuming that results from different studies are comparable, due to consistency in skills examination and the use of realistic benchmarks, this indicates that financial literacy is low across the entire population, although higher educated individuals are expected to have better financial skills and knowledge than those who are less educated. These findings raise some concern about the actual measurement of financial literacy. Although definitions of financial literacy appear to be consistent and agreeable across all nations, little focus has been given to implementing congruency in the actual measurement of financial literacy. Further research and testing is needed to determine more realistic benchmarks for the ongoing measurement of financial literacy. This will also help to determine the validity of implementing educational strategies in order to improve financial literacy in schools, universities, colleges and workplaces.
6. Concluding Remarks and Recommendations for Further Research

Financial literacy has become increasingly important with the deregulation of financial markets and the easier access to credit as financial institutions compete strongly with each other for market share; the easy issue and general acceptance of credit cards which has facilitated spending on consumption; the rapid growth in development and marketing of financial products, and the Government's encouragement for citizens to take more responsibility for their retirement incomes and move away from public pensions. Thus, financial literacy skills enable individuals to navigate the financial world, make informed decisions about their money and minimise their chances of being misled on financial matters (CBF, 2004a, 2004b; Beal and Delpachitra, 2003).

It is expected that the importance of having both personal financial literacy skills and knowledge will continue to grow (RMR, 2003). Thus, financial literacy will continue to be a prominent research topic both in Australia and other countries and it is expected that the focus will lean towards the implementation and evaluation of strategies to improve the financial literacy levels of certain cohorts of populations where a lack of financial knowledge and skill has been identified by previous research.

Although the above studies have identified segments of the population that have poor financial literacy, there are some limitations, which suggest further areas of research. All the studies showed that individuals with higher education levels, or those students with business majors as opposed to other majors, generally have higher levels of financial literacy. However, no study has attempted to investigate or make comparisons between the educational details of individuals such as major areas of study (other than simply business or other), the current year of study or individual marks obtained, nor has any attempt being made to make comparisons between students from different educational
institutions. Beal and Delpachitra (2003) conducted the only Australian study of university students by surveying first year students at the University of Southern Queensland where they found low levels of financial literacy. It was assumed that student's financial skills and knowledge, business students in particular, would improve as they progress through to completion of their studies. One area of research could then focus on gathering detailed information on higher education courses studied, make comparisons between students across different years of study and also make comparisons between different educational institutions, which could identify any institution that has superior methods of delivering financial education to its' students.

Because financial literacy has become increasingly important and essential for the economic wellbeing of the nation's future (CBF, 2004b), it is important that financial literacy can be explicitly linked with financial behaviour, and hence financial success and sustainability. No financial literacy study has achieved this, although the CBA study made a preliminary attempt to investigate the strength of any link between financial literacy and outcomes for both individuals and the Australian economy. It is possible that certain aspects of financial literacy are more or less significant in an economic sense in determining good or bad financial behaviour, and consequently, high or low levels of financial success and sustainability of such success. Another area of research could then focus on the components of financial literacy and determine which are the most and least critical to financial success and sustainability.

Several studies revealed that personal financial skills and knowledge are acquired mostly through 'trial and error', but no research to date has actually attempted to investigate what types of financial experiences and characteristics have the most influence on an individual's personal financial literacy or competence. Demographic
information such as income, savings and debt have been included in most studies, although little details are known about their structure and complexity and whether this contributes differently to financial literacy acquired over time. Hence another area of research could focus on gathering extensive details of financial experience and characteristics, which may prove to be important influential variables in modelling financial literacy among general populations.

Finally, further research could focus on the actual measurement of financial literacy. Extensive research and testing is needed to determine consistency and more realistic benchmarks for the ongoing measurement of financial literacy.
REFERENCES


