Emergency Funds in Australian Households: An Empirical Analysis of Capacity and Sources

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This paper examines demographic and socioeconomic characteristics as predictors of emergency fund adequacy in Australian households. The results indicate that the presence of children, the number of dependents and income-earning units, the age and ethnicity of the household head, income dependency upon retirement plans and investments and government pensions and benefits, homeownership and disposable income are significant determinants of the capacity to raise emergency funds. They are also important predictors of the likely source of emergency funds. However, they are generally better at predicting mainstay sources of funds such as own savings and loans from deposit-taking institutions and credit card usage than loans from family or friends.
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Financial wellness is an important part of an individual's overall level of satisfaction or happiness. By attaining financial wellness, individuals can be as well off financially as possible given their circumstances, and therefore in a better position to maximize total utility. They do so by comparing their subjective needs for financial stability, sufficiency and standards, with the objective amount of material and non-material financial resources that they possess.

In order to at least meet the objective criteria for attaining financial wellness, four dimensions of financial planning are usually identified. These vary according to whether they are planned or unplanned financial events and whether they relate to current or future periods (Chieffe & Rakes, 1999). In the context of planned financial events, there is *financial management* in the current period, including household budgeting and tax planning, and *investment planning* for future periods, covering investment in stocks, bonds, mutual funds and real estate and retirement planning. And for unplanned financial events there is *transference planning* for future periods, including estate planning, trusts, business agreements, tax planning and charitable bequests.

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The remaining financial planning dimension recognizes that regardless of how well a person has planned elsewhere, in the current period the individual may also need *emergency funds* to meet unexpected financial needs (Chieffe & Rakes, 1999). These cover a wide range of financial contingencies, but are most often associated with periods of unemployment, withdrawal from the labor force due to health problems and parenthood, and unexpectedly large commitments for household expenses, including vehicle and housing repairs (Hatcher, 2000).

Unfortunately, individuals often feel that accumulating funds for emergencies is not as important as accumulating funds for other goals, nor is planning for emergencies ranked as highly as other aspects of financial planning. Financial planners generally recommend that individuals accumulate emergency funds of two to three months of expenses or income and keep these in a liquid form such as a savings account, money market fund or certificate of deposit. Nearly all studies have found that few households meet this standard (Chang & Huston, 1995; Chang, Hanna & Fan, 1997; Huston & Chang, 1997). But without exception this work has an exclusively North American focus, so little is known about emergency funds in other contexts, including Australia.

As an alternative, and recognizing that accumulating funds may not be rational where income is more certain, others suggest keeping open a line of credit in the form of a credit card or home equity loan. Unfortunately, reserving such emergency funds for the purpose intended is often difficult in practice (Chieffe & Rakes, 1999). Besides, individuals sometimes find that using credit as emergency funds exposes them to an ongoing cycle of repayment difficulties (Castellani & DeVaney, 2001). This means that few individuals and households have either the required level or the diversity of emergency funds sources consistent with prudent financial planning. Evidence in Australia also suggests that households tend to rely on just a few sources and that spiraling credit card balances are indicative of the use of relatively expensive sources of emergency funds.

Such omissions are grave because the absence of emergency funds (as either accumulated savings or available credit) has the potential to adversely affect financial wellness. In most developed economies, including Australia, mortgage debt and consumer credit relative to disposable income are at or near all time record highs. One concern of central banks, including those in Australia, the United States and the United Kingdom, is that a macroeconomic shock or housing sector price collapse with such a high level of indebtedness among households with low levels of emergency funds could lead to increased delinquencies

and bankruptcies with a flow on to the health of financial lenders (Maki, 2000; Scheherazade, 2002; McFarlane, 2003; Nickell, 2003). There is special concern in Australia about the rise in unsecured debt among vulnerable lower-income and younger households since they often have low levels of emergency funds.

Similarly, the lack of emergency funds has been recognized as a major contributor to financial stress (McColl, Pietsch & Gatenby, 2002). Garman, Leech and Grable (1996), for example, has linked the lack of emergency funds (as part of generally poor financial behavior) with stress, absenteeism, substance abuse and lower productivity in the workplace. This is also the case in Australia. All the same, the availability of some forms of emergency funds is also regarded as social capital in a community and is therefore reflective of social wellness. For instance, the Australian Bureau of Statistics (2000, 2003) has identified the ability to source financial assistance from family and friends in its draft social capital indicators.

The purpose of this paper is to add to the small emergency funds literature an analysis of the capacity and potential sources of emergency funds in Australian households using the unit record files underlying the Australian Bureau of Statistics' (2002) *Household Expenditure Survey*. This survey focuses on the demographic and socioeconomic characteristics of households and can be linked with these households' ability to raise emergency funds and the potential source(s) of these funds, as variously measured. To the author's knowledge this is the first study of its kind in Australia. Such omission in the past is critical because the low levels of emergency funds in Australian households and the likelihood of such funds being obtained from relatively costly sources means that financial wellness is at risk, especially now that interest rates are rising and house values are falling. At the same time, this work complements studies elsewhere in this area, and may thus shed light on any peculiarities regarding the adequacy of emergency funds, especially in the United States.

The paper itself is divided into four main areas. The first section explains the empirical methodology, data and hypotheses. The second section presents a descriptive analysis of the data. The third section discusses the results. The paper ends with some brief concluding remarks.

Research Method

All data in the study is obtained from the Australian Bureau of Statistics' (2002) *Household Expenditure Survey* Confidentialized Unit Record File (CURF) and relates to a sample of

6,892 Australian households. The strength of this data is that it is a national survey concerning the demographic and socioeconomic characteristics of Australian households and for the first time includes a number of items to measure emergency funds in households. Unfortunately, it comprises a single cross-section so there is no meaningful way in which household behavior in the most recent survey can be linked with the results of earlier surveys and income and expenditure can only be realistically interpreted at the household level. Nonetheless, the dataset is comparable to that used in previous work in this area, especially in the United States (Chang & Huston, 1995; Chang, Hanna & Fan, 1997; Huston & Chang, 1997).

The analytical technique employed is to specify households' access and preferences for emergency funds as the dependent variable (*y*) in a regression with demographic and socioeconomic characteristics as explanatory variables (*x*). The nature of the dependent variable indicates discrete dependent variable techniques are appropriate. Accordingly, the following binary logistic model is specified:

$$\text{Prob}(y=1) = \frac{1}{1+e^{-\beta'x}} \tag{1}$$

where *x* comprises a set of characteristics posited to influence the availability and choice of emergency funds, β is a set of parameters to be estimated and *e* is the exponential. The coefficients imputed by the binary logistic model provide inferences about the effects of the explanatory variables on the probability of being able to access emergency funds in a variety of forms. While consistent with previous work regarding the socioeconomic and demographic determinants of access to emergency funds (Chang & Huston, 1995; Chang, Hanna & Fan, 1997; Huston & Chang, 1997), this approach is also similar to research exploring other areas of household financial decision-making including choice of debt finance (Canner & Luckett, 1991; Wasberg, Hira & Fanslow, 1992; Lunt & Livingston, 1992; Lea, Webley & Levine, 1993; Zhu & Meeks 1994; Lea, Webley & Walker, 1995; Crook, 2001) and the causes of financial stress, delinquency and bankruptcy (DeVaney & Lytton, 1995; DeVaney & Hanna, 1995; Walker, 1996; Domowitz & Sartain, 1999; Gropp, White & Scholz, 1997).

The dataset is composed of four sets of information, all of which are derived from the survey responses. The first set of information provides the dependent variables in the binary logistic model in equation (1). The first question asked in the survey was whether the respondents had the ability to raise emergency money of $2,000 in one week. In the next six questions the respondents were asked whether they would use their own savings (cash and money in

checking and savings accounts) as a source of emergency funds and/or a loan from a deposit-taking institution (including banks, building societies and credit unions) and/or a high interest loan from a finance company and/or a loan on a credit card, and/or a loan from family or friends and/or a loan from a welfare or community organization ($y = 1$). For the first question the reference category is the household was unable to raise emergency funds of $2,000 in one week and for the next six questions that the household would not or could not use the stated source of emergency funds ($y = 0$). These seven responses comprise the dependent variables in separate binomial logistic analyses aimed at explaining the ability to raise emergency funds and the likely sources of these funds in Australian households.

The specification of emergency funds used in the study differs from other work in this area. Huston and Chang (1997), for example, used different liquidity criteria corresponding to three months income held in liquid assets (quick emergency funds), liquid assets and savings certificates (intermediate emergency funds) and liquid assets, certificates of deposit, savings certificates and stocks and bonds (comprehensive emergency funds). Alternatively, Chang and Huston (1995) used only the intermediate criterion for emergency funds while DeVaney (1995) specified just the comprehensive criterion.

One advantage of measuring of emergency funds in this manner is that it reflects the different opportunity costs associated with holding funds in these forms. For example, in low-income households the opportunity cost of holding assets in liquid form should differ to middle and high-income households because of fewer debt obligations, the presence of bankruptcy as a reasonable alternative in case of financial difficulties and the lower real rates of return available on invested funds. However, emergency funds should also vary according to a range of non-income related factors. For instance, households dependent on the income of a single employed person may need a larger emergency fund, as would households with employees in industries subject to layoffs and redundancies or those with poorer access to credit markets. Regrettably, such specific information relating to household financial assets was not collected in the Australian survey.

The next two sets of information are specified as explanatory variables in the binary logistic regression models. The first of these relates to household demographic characteristics and the second to socioeconomic characteristics. Starting with the demographic variables, whilst there is no unequivocal rationale for predicting the direction and statistical significance of these independent variables, their inclusion is consistent with both past studies of the determinants of household emergency funds (as variously defined) and the presumed interests of policy-

makers and other parties. For example, Chang and Huston (1995) used age, education, marital and employment status, occupation and ethnicity in their analysis of emergency fund holding in US households, while Huston and Chang (1997) also included each household's geographic location.

The first six variables concern household structure. These represent households composed respectively of couples and single parents with children over 15 years of age, couples and single parents with children 14 years or younger and couples and single parents with children both under 14 years and over 15 years. The reference category for these variables is single person and couple only households. The next eleven variables relate to the sex, age, marital status and ethnic background of the household head. These are used as proxies for general characteristics including stage of life cycle, unobservable risk preferences and access to labor and credit markets. For instance, Böheim and Taylor (2000) reasoned non-whites may experience financial difficulties because of a lack of familiarity with financial institutions or the differential access to credit, Canner and Luckett (1991) and DeVaney and Hanna (1994) found that divorced or separated and younger persons were more likely to experience financial problems, and Huston and Chang (1997) included family structure as an indication of the pattern of financial dependency.

The variables specified are the household head's sex, age and marital status and whether born in Europe, the Middle East and Africa, Asia or elsewhere. The reference categories are male, aged under 35 years, unmarried and born in Australia household heads, respectively. The final two variables included are the number of income units and dependents in each household. Ling and McGill (1998), for instance, identified dual-wage earning households as an indicator of financial strain along with the number of children, though it is thought that households with more than a single wage earner may have a lower need for emergency funds.

The next group of variables relate to income characteristics. The first three variables are dummy variables indicating whether the principal source of household income is derived from self-employment, retirement plans and investments or government pensions and benefits. The control is wages and salaries. In this instance and holding income constant, it may be hypothesized that the more fixed the level of permanent income, the lower the need for emergency funds. Böheim and Taylor (2000) also hypothesized that the sources of income were a potential indicator of financial stress as a household with a retired head was more likely to report financial difficulties than employees, and observing that in many cases self-

employment predated indebtedness because of the interaction between businesses and the collateral provided by housing wealth.

The next two variables indicate whether the principal residence is being bought or rented (reference category is owned outright) (Canner & Luckett, 1991). It is generally the case that transaction costs associated with owner-occupation are sizeable when compared to renting, while mortgaged households with large fixed payments and a general lack of mobility may be less able to adjust to changes in employment conditions. It is then hypothesized that the opportunity cost of not holding or being unable to access emergency funds is higher for households with a higher level of indebtedness and asset wealth. Lastly, the estimated value of the principal dwelling and household disposable income are also included. All other things being equal, greater wealth and/or income should increase the likelihood that households are able to access emergency funds and to access funds from a wider variety of sources, not least their own savings.

Of course, there are many other variables that would be useful for our understanding of emergency funds that could not be included in the analysis. One of these is the stock of accumulated wealth, in the form of bank deposits, stocks, bonds, etc. Common sense suggests that the ability of households to raise emergency funds has something to do with capital accumulation. Similarly, there is no allowance for affective measures such as risk tolerance and attitudes to credit (Ding & DeVaney, 2000) nor is consideration given directly to the impact of family life cycle stages on emergency fund adequacy (Chen & DeVaney, 2001). Unfortunately, information on accumulated wealth, risk tolerance, attitudes to credit and family life cycle, amongst others, was not provided in the survey. Accordingly, there is the likelihood that the estimated regressions may include omitted variable bias.

Description of the Data

Selected descriptive statistics of the seven dependent variables are provided in Table 1. Overall, 5,603 households (81.3%) are able to raise emergency funds of $2,000 in one week, 3,238 (46.9%) would use their own savings, 2,126 (30.8%) would use a loan from a deposit-taking institution, 599 (8.6%) would use a loan from a finance company, 1,694 (24.5%) would use a loan on a credit card, 2,094 (30.3%) would use a loan from family or friends and 61 (0.9%) would use a loan from a welfare or community organization. The internal reliability of these measures is relatively high ($\alpha = 0.6094$) suggesting broad agreement between capacity and the alternative sources of emergency funds.

<TABLE 1 HERE>

By and large, the distributional properties of the independent variables (not shown) in Table 1 appear non-normal. Some of the values are positively skewed, indicating a long right tail for the continuous variables and the much lower probability of ones as against zeros in the binary variables. The kurtosis, or degree of excess, in several variables is also often positive and larger than three thereby indicating leptokurtic or peaked distributions. Nevertheless, logistic regression does not rely on distributional assumptions in the same sense that other estimation techniques do, though the regression solutions may be more stable if the predictors have a multivariate normal distribution. A more important consideration, as with other forms of regression, is that multicollinearity among the predictors can lead to biased estimates and inflated standard errors. Tests for multicollinearity are conducted below.

Tests for differences in means and proportions for the independent variables in Table 1 (mean or proportion for reference and included category, p-value for difference) indicate many statistically significant differences between households that can and cannot raise emergency funds and the different possible sources of emergency funds. For example, and all other things being equal, households that are able to raise emergency funds of $2,000 in one week are more likely to be single person or couples only (4.89% and 10.55%, 0.0000) or with children under 14 years (18.15% and 20.54%, 0.0470), less likely to be single parents with older children (4.89% and 3.12%, 0.0062) and with children 14 years and younger and 15 years and over (2.79% and 0.73%, 0.0000), less likely to be female (52.99% and 37.00%, 0.0000), less likely to be divorced or separated (31.19% and 18.76%, 0.0000) and more likely to be married (45.69% and 67.55%, 0.0000).

They are also less likely to be from a Middle Eastern/African (2.64% and 0.82%, 0.0001) or Asian background (6.44% and 4.75%, 0.0225), have fewer dependents (0.95 and 0.71, 0.0000), rely on self-employment (3.57% and 7.10%, 0.0000) or retirement plans and investments (2.09% and 8.35%, 0.0000) as the principal source of income and less likely to rely on government pensions and benefits (51.98% and 20.40%, 0.0000). Lastly, they are more likely to be buying their own home (22.19% and 33.95%, 0.0000), less likely to be renting (58.88%, 21.74%, 0.0000) and more likely to have a higher valued residence ($58,100 and $155,220, 0.0000) and higher disposable income ($486 and $776, 0.0000).

Empirical Findings

The estimated coefficients (standard errors not shown) and levels of significance for the binary logistic regressions are provided in Table 2. To facilitate comparability, marginal effects are also included. These indicate the marginal effect of each outcome on the probability of being able to raise emergency funds in the first instance and on the possible sources of emergency funds in the second. Also included in Table 2 is the Nagelkerke R^2 as an analogue for that used in the linear regression model and the Hosmer-Lemeshow statistic as a test for misspecification. Given that loans from finance companies and welfare or community organizations have been shown to be less important sources of emergency funds for Australian households, regression models have not been estimated using these dependent variables. Similarly, models employing the entire set of explanatory variables were initially estimated (results not shown), followed by refined specifications obtained using forward stepwise regression with the Wald criteria. The refined models were always preferred in terms of the trade-off between comprehensiveness and complexity (under the Hannan-Quinn criteria) so only the refined models are shown. This allows a focus on the most significant factors affecting emergency funds.

All of the estimated models are highly significant, with likelihood ratio tests of the hypotheses that all of the slope coefficients are zero rejected at the 1 percent level using the likelihood ratio statistic (not shown). The results also appear sensible in terms of both the precision of the estimates and the signs on the coefficients. To test for multicollinearity variance inflation factors are calculated (not shown). As a rule of thumb, a variance inflation factor greater than 10 indicates the presence of harmful collinearity. Amongst the independent variables the highest variance inflation factors are households heads who are married or in a de facto relationship (3.0706) and the number of dependents (3.0554). These suggest that multicollinearity, while present, is not too much of a problem.

<TABLE 2 HERE>

The first model discussed is that predicting the ability to raise emergency funds of $2,000 in one week. The significant and positive estimated coefficients indicate that households with heads older than 65 years, those on retirement plans and investments, and with higher valued homes and larger disposable incomes are more likely to be able to raise emergency funds. The significant and negative coefficients indicate that households where the head is widowed divorced or separated, born in the Middle East or Africa, with more income units and

dependents, those dependent on government pensions and benefits, and those whose principal residence is being bought or rented are less likely to be able raise emergency funds. The three greatest influences on the ability to raise emergency funds (marginal effect in parentheses) are disposable income (4.338), household heads aged 65 years or older (2.836) and households dependent on retirement plans and investments as the principal source of income (1.738).

One interesting finding, even after controlling for income, is that ethnic status appears to play an important role in the capacity to raise emergency funds. Similar results have been observed elsewhere. For example, DeVaney (1995), Chang and Huston (1995) and Huston and Chang (1997) all found that black households in the United States were significantly less likely to meet emergency fund guidelines than other ethnic groups. Chang & Huston (1995, p. 125) reasoned that black households could have lower expected lifetime income and therefore it would be rational to hold fewer funds in reserve, while Huston & Chang (1997, p. 44) argued that the eligibility for public assistance might likewise mean a lesser reliance on emergency funds. In Australia it is possible that ethnic households may choose to not hold emergency funds for similar reasons, though cultural norms may also have a role to play.

The next four regressions indicate possible sources of emergency funds for households. Consider the model where households indicated they would use their own savings as a source of emergency funds. In this regression, the willingness or ability to raise emergency funds using household savings is negatively associated with couples with older children, all categories of single parents, households where the household head is born in Europe, the Middle East or Africa, those with a larger number of income units or dependents, those reliant on government pensions and benefits and those buying or renting their home. It is positively associated with households with heads aged over 65 years, those dependent on retirement plans and investments and those with a higher valued residence and higher disposable income. The primary determinants of the willingness to raise emergency funds using household savings (as measured by the marginal effect) are disposable income, income dependency on retirement plans and investments and age with these factors being responsible for increasing the odds of raising emergency funds though savings of 3.36, 1.82 and 2.61 times, respectively.

The results of the analysis differ dramatically across the various possible sources of emergency funds. For example, where emergency funds would be sourced from a loan from a deposit-taking institution the positive factors are households with heads between 35 and 49 years and 50 and 65 years, those buying their home and those with higher disposable incomes

and the negative factors are households with couples and single persons with younger children, households headed by females and those born in Asia, households with more income units, those dependent on retirement plans and investments or government pensions and benefits, those that are renting and those with higher-valued homes. Alternatively, only eight factors are significant where a loan from family or friends would be used as a source of emergency funds. Positive influences on raising emergency funds in this manner are households headed by female and those buying their home, while negative influences are households with heads aged between 35 and 49 years, 50 and 65 years and over 65 years, those married or in a de facto relationship, and those households dependent on retirement plans and investments or government pensions and benefits.

As a final requirement, the ability of the models to accurately predict outcomes in terms of emergency funds is examined. Table 3 provides the predicted results for each model and compares these to the probabilities obtained from a constant probability model. The probabilities in the constant probability model are the values computed from estimating a model that includes only an intercept term, and thereby corresponds to the probability of correctly identifying the dependent variable solely on the basis of the proportion in the sample.

To start with, consider the model where (the ability to raise $2,000 in emergency funds in one week is specified as the dependent variable. Of the 6,892 households in the sample, 5,603 (81.3%) indicated that they could raise emergency funds of $2,000 in one week and 1,289 (18.7%) indicated that they could not. Of these, the constant probability model correctly predicts 241 cases (18.7%) as not being able to raise emergency funds and 4,555 cases (81.3%) as being able to raise emergency funds. This represents the correct prediction of 4,796 cases (69.5%) of all households. By contrast, the estimated model correctly identifies 440 cases (34.1%) as not being able to raise emergency funds and 5,373 cases (95.9%) as being able to raise emergency funds. Thus, the model correctly identifies 5,813 of the 6,892 households (84.3%) in terms of their ability or inability to raise emergency funds. This indicates an absolute improvement of 21.2% over the constant probability model (in terms of the number of correct predictions) and a relative improvement of 48.5% (in terms of the number of incorrect predictions). This suggests that common demographic and socioeconomic factors are generally good predictors of emergency fund adequacy.

<TABLE 3 HERE>

The estimated models for the possible sources of emergency funds also deliver improvements in correct and incorrect predictions over the constant probability models. The percentages of correct predictions across these models (percentage of correct predictions for constant probability models in parentheses) are: would use own savings 69.4% (50.1%), would use a loan from deposit-taking institution 70.4% (57.3%), would use a loan on a credit card 75.3% (62.9%), and a loan from family or friends 69.3% (57.7%). Of course, these are 'in-sample' predictions and the results could differ if 'out-of-sample' data was made available. There is less relative improvement between the constant probability and estimated models for loan from family and friends and an obvious factor is the smaller proportion of households who would be willing or able to access loans from family or friends as a source of emergency funds.

In fact, just 5.1% of the ability and willingness to source emergency funds is predicted correctly when the dependent variable is loans from family and friends, though 63.9% of households are predicted correctly when own savings as a source of emergency funds is specified as the dependent variable. This suggests that the demographic and socioeconomic variables specified in the analysis are extraordinarily valuable in predicting the possible sources of emergency funds for core areas such as own savings and loans from deposit-taking institutions, but much less valuable for predicting emergency funds that is sourced from non-core areas such as family and friends. Prediction in these areas may improve if measures of social engagement, such as proxies for the depth and breadth of religious, community and family connections, were made available.

Concluding Remarks and Policy Recommendations

This study uses binary logistic models to investigate the role of demographic and socioeconomic characteristics in determining the capacity and likely sources of emergency funds in Australian households. It extends empirical work in this area in at least two ways. First, it represents the first attempt using qualitative statistical techniques to model emergency funds in Australian households, and one of very few studies to model emergency funds outside of the United States. This provides an important starting point for future research in this area. Second, rather than merely focusing on the ability to raise emergency funds as found in previous empirical work, the current study examines the putative sources of emergency funds. No comparable study is then thought to exist elsewhere. Given the similarities between the financial systems in the United States and Australia, the results

should be useful for understanding household emergency funds in both milieus. The evidence found suggests that the capacity and possible sources of emergency funds are very much a function of the demographic and socioeconomic characteristics of households.

To start with, this paper has shown that the primary determinants of the ability to raise emergency funds in Australian households are demographic characteristics. These include the presence of children, the number of dependents and income-earning units, the age and sex of the household head, and also whether the householder was not born in Australia. The results show that household socioeconomic factors also have a role in understanding access to emergency funds. Key factors here include the decreasing likelihood of accessing funds when a household is dependent upon government pensions and benefits or is buying or renting their own home, while positive factors are associated with higher values of owner-occupied housing and disposable income. By itself, disposable income is a key factor associated with the ability to raise and the likely sources of emergency funds, increasing the odds of raising emergency funds from any source by 4.34 times and the likelihood of accessing own savings and loans from deposit-taking institutions and credit cards between 1.44 and 3.36 times. But the level of disposable income does not appear to influence the likelihood of raising emergency funds via loans from family and friends. Housing values are also important in increasing the ability to raise emergency funds, but only increase the odds of raising such funds through own savings and loans from deposit-taking institutions and not from other sources.

A number of broad issues can be presented regarding access to emergency funds. First, in Australia there are already many public programs aimed at helping socioeconomically disadvantaged households, including income support, unemployment, disability and pension benefits, dependent spouse rebates and allowances, child support and endowment and concessional benefits. However, few of these mechanisms provide low cost emergency funds. This is a concern in that even where a household is able to raise emergency funds it may be through relatively high cost sources such as loans on credit cards. Second, for the most part it would appear that the capacity to raise emergency funds is very much a function of a household's engagement with the financial sector. All other things being equal, a household that draws income from retirement plans and investments and/or which owns or is buying their home have greater engagement with the funds sector and are able to gain emergency funds through a variety of mechanisms, including equity loans, fully drawn advances, overdrafts, disposal of marketable financial assets, etc. This is potential evidence, albeit

indirect, of the benefits of the longstanding process of financial deregulation, competitive reforms and product development in the Australian financial system and elsewhere.

Third, housing occupancy also appears to play a major role regarding access to emergency funds. Those Australians buying their home were less likely than homeowners to access own savings or loans from deposit-taking institutions and more likely to source emergency funds from loans on credit cards and loans from family or friends. Renters were also less likely to access own savings and credit cards than homeowners. This may suggest that government initiatives aimed at increasing homeownership, holding income constant, may provide collateral benefits in terms of improving the accessibility to emergency funds. Finally, in much the same manner that firms have a preference or 'pecking order' for internal over external funds, the only significantly negative rank correlations among the different sources of emergency funds are for those willing to use own savings and loans from deposit-taking institutions and loans from family and friends. This suggests that those more able to access internal savings as a source of emergency funds are relatively less willing to access external sources.

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Table 1
Dependent and Independent Variable Definitions and Descriptive Statistics

Variables	Coding	Mean (standard deviation) or %
DEPENDENT VARIABLES		
Able to raise emergency funds of $2,000 in one week	1 if yes, 0 otherwise	81.3%
Sources of emergency funds		
Would use own savings	1 if yes, 0 otherwise	46.9%
Would use loan from deposit-taking institution	1 if yes, 0 otherwise	30.8%
Would use loan from finance company	1 if yes, 0 otherwise	8.6%
Would use loan on credit card	1 if yes, 0 otherwise	24.5%
Would use loan from family or friends	1 if yes, 0 otherwise	30.3%
Would use loan from welfare or community organization	1 if yes, 0 otherwise	0.9%
INDEPENDENT VARIABLES		
Household structure		
Single person or couple only households	reference category	55.9%
Couple with children > 15 years	1 if yes, 0 otherwise	9.4%
Couple with children < 14 years	1 if yes, 0 otherwise	20.2%
Couple with children < 14 years and > 15 years	1 if yes, 0 otherwise	5.3%
Single parent with children > 15 years	1 if yes, 0 otherwise	3.4%
Single parent with children < 14 years	1 if yes, 0 otherwise	4.6%
Single parent with children < 14 years and > 15	1 if yes, 0 otherwise	1.2%
Sex of household head		
Male	reference category	60.1%
Female	1 if yes, 0 otherwise	39.9%
Age of household head		
< 35 years	reference category	25.5%
35 – 49 years	1 if yes, 0 otherwise	35.3%
50 – 65 years	1 if yes, 0 otherwise	22.3%
> 65 years	1 if yes, 0 otherwise	16.9%
Marital status of household head		
Single or never married	reference category	15.4%
Widowed, divorced or separated	1 if yes, 0 otherwise	21.1%
Married or in de facto relationship	1 if yes, 0 otherwise	63.5%
Ethnicity of household head		
Born in Australia (reference category)	reference category	75.1%
Born in Europe	1 if yes, 0 otherwise	16.8%
Born in Middle East and Africa	1 if yes, 0 otherwise	2.1%
Born in Asia	1 if yes, 0 otherwise	5.1%
Born elsewhere	1 if yes, 0 otherwise	0.9%
Household size and dependency		
Number of income units in household		1.2 (0.6)
Number of dependents in household		0.7 (1.1)
Principal source of household income		
Salaries and wages	reference category	60.1%
Self employment	1 if yes, 0 otherwise	6.4%
Retirement plans and investments	1 if yes, 0 otherwise	7.2%
Government pensions and benefits	1 if yes, 0 otherwise	26.3%
Nature of occupancy of principal dwelling		
Owned outright	reference category	39.5%
Being bought	1 if yes, 0 otherwise	31.8%
Being rented	1 if yes, 0 otherwise	28.7%
Income and wealth		
Estimated value of principal dwelling		$137,500 ($144,930)
Household weekly disposable income		$722 ($500)

Table 2
Estimated Coefficients and Marginal Effects from the Refined Binomial Logistic Models

Independent variables	Able to raise emergency funds of $2,000 in one week		Would use own savings		Would use loan from deposit-taking institution		Would use loan on credit card		Would use loan from family or friends	
	Estimated coefficient	Marginal effect	Estimated coefficient	Marginal effect	Estimated coefficient	Marginal effect	Estimated coefficient	Marginal effect	Estimated coefficient	Marginal effect
Household structure										
Single person or couple only (reference category)										
Couple with children > 15 years	–	–	-0.320**	0.726	–	–	–	–	–	–
Couple with children < 14 years	–	–	–	–	-0.200***	0.819	–	–	–	–
Couple with children < 14 years and > 15 years	–	–	–	–	–	–	–	–	–	–
Single parent with children > 15 years	–	–	-0.338**	0.713	–	–	–	–	–	–
Single parent with children < 14 years	–	–	-0.700***	0.496	-0.385**	0.680	–	–	–	–
Single parent with children < 14 years and > 15 years	–	–	-1.307***	0.271	–	–	-1.083**	0.338	–	–
Sex of household head										
Male (reference category)										
Female	–	–	–	–	-0.141**	0.868	–	–	0.143**	1.154
Age of household head										
< 35 years (reference category)										
35 - 49 years	–	–	–	–	0.252***	1.287	–	–	-0.548***	0.578
50 - 65 years	–	–	–	–	0.205***	1.227	–	–	-0.954***	0.385
> 65 years	1.042***	2.836	0.963	2.619	–	–	-0.319**	0.727	-0.803***	0.448
Marital status of household head										
Single or never married (reference category)										
Widowed, divorced or separated	-0.078**	0.925	–	–	–	–	–	–	–	–
Married or in de facto relationship	–	–	–	–	–	–	–	–	-0.166***	0.847
Ethnicity of household head										
Born in Australia (reference category)										
Born in Europe	–	–	-0.322***	0.725	–	–	–	–	–	–
Born in Middle East and Africa	-0.804***	0.447	-0.861***	0.423	–	–	–	–	–	–
Born in Asia	–	–	–	–	-0.594***	0.552	–	–	–	–
Born elsewhere	–	–	–	–	–	–	–	–	–	–
Household size and dependency										
Number of income units in household	-0.516***	0.597	-0.521***	0.594	-0.213***	0.808	-0.224***	0.800	–	–
Number of dependents in household	-0.235***	0.790	-0.268***	0.765	–	–	-0.097***	0.907	–	–
Principal source of household income										
Salaries and wages (reference category)										
Self employment	–	–	–	–	–	–	–	–	–	–
Retirement plans and investments	0.553**	1.738	0.599***	1.821	-0.772***	0.462	-0.419***	0.658	-0.576***	0.562
Government pensions and benefits	-1.245***	0.288	-0.719***	0.487	-1.282***	0.277	-1.084***	0.338	-0.521***	0.594
Nature of occupancy of principal dwelling										
Owned outright (reference category)										
Being bought	-0.799***	0.450	-1.080***	0.340	0.276***	1.318	0.211***	1.235	0.208***	1.231
Being rented	-1.042***	0.353	-1.149***	0.317	-0.632***	0.531	-0.387***	0.679	–	–
Income and wealth										
Estimated value of principal dwelling	0.405***	1.499	0.064**	1.066	-0.063**	0.939	–	–	–	–
Household weekly disposable income	1.467***	4.338	1.213***	3.362	0.370***	1.448	0.643***	1.902	–	–
Constant	1.926***	6.864	0.541***	1.717	-0.373***	0.689	-0.972***	0.379	-0.178**	0.837
Nagelkerke R^2	0.331	–	0.265	–	0.165	–	0.132	–	0.073	–
Hosmer-Lemeshow test statistic	17.646**	–	30.952***	–	14.246*	–	18.378**	–	10.511	–

Notes: * $p < .10$, ** $p < .05$, *** $p < .01$.

Table 3
Observed and Predicted Values for the Refined Binomial Logistic Models

Dependent variables	Response	Total	Predictions from constant probability model			Predictions from estimated model		
			No	Yes	%	No	Yes	%
Able to raise emergency funds of $2,000 in one week	No	1289	241	1048	18.7	440	849	34.1
	Yes	5603	1048	4555	81.3	230	5373	95.8
	Total	6892	1289	5603	69.5	670	6222	84.3
Would use own savings	No	3654	1937	1717	53.0	2714	940	74.2
	Yes	3238	1717	1521	46.9	1168	2070	63.9
	Total	6892	3654	3238	50.1	3882	3010	69.4
Would use loan from deposit-taking institution	No	4766	3296	1470	69.1	4418	348	92.6
	Yes	2126	1470	656	30.8	1688	438	20.6
	Total	6892	4766	2126	57.3	6106	786	70.4
Would use loan on credit card	No	5198	3920	1278	75.4	5139	59	98.8
	Yes	1694	1278	416	24.5	1644	50	2.9
	Total	6892	5198	1694	62.9	6783	109	75.2
Would use loan from family or friends	No	4798	3340	1458	69.6	4668	130	97.2
	Yes	2094	1458	636	30.3	1987	107	5.1
	Total	6892	4798	2094	57.7	6655	237	69.2

Notes: % - is the number of correct predictions for each response (i.e. No or Yes) as a percentage of the observed values for No and Yes; Total percent correct is the number of correct predictions (i.e. No and Yes) as a percentage of the total observed values for No and Yes.