UNSW Workshop on Risk & Actuarial Frontiers

SUMMARY	To celebrate the visit of A/Prof Thomas Davidoff (University of British Columbia), the UNSW School of Risk and Actuarial Studies is hosting a half-day workshop on "Housing wealth and home equity release: Product design, demand and behavioural factors".
DATE	Friday, 24 February 2023
VENUE	UNSW Business School, Room 119 https://goo.gl/maps/Ecrfbjq2zaXFVjo57
REGISTRATION	Free, please use: https://forms.office.com/r/X56Z5Zi588
CONTACT	School of Risk & Actuarial Studies, UNSW Sydney • Maree Withers, m.withers@unsw.edu.au • A/Prof Katja Hanewald, k.hanewald@unsw.edu.au • Dr Len Garces, l.garces@unsw.edu.au

Program (Friday, 24 February 2023)

Venue: UNSW Business School, Room 119

9:10 – 9:30	**Coffee on arrival**
9:30 – 9:35	**Workshop Opening** Bernard Wong (UNSW Sydney)
9:35 – 10:30	**Session 1** Moderator: Qihe Tang (UNSW Sydney) Presenter: Thomas Davidoff (University of British Columbia), "Interest Accumulation in Reverse Mortgage Loans with Termination Moral Hazard"
10:30 – 11:00	**Coffee break**
11:00 – 12:30	**Session 2** Moderator: Len Garces (CEPAR, UNSW Sydney) **Research briefs (10 minutes each incl. Q&A):** • Colin Zhang (Macquarie University), "Optimal Consumption, Investment, Housing and Life Insurance Purchase Decisions for a Couple with Dependent Mortality" • Katja Hanewald (UNSW Sydney, CEPAR), "Home Equity Release Strategies in a Two-Generation Model" • Hazel Bateman (UNSW Sydney, CEPAR), "Demand for Reverse Mortgages: Behavioural Explanations" • Susan Thorp (University of Sydney), "Feeling Comfortable with a Mortgage: The Impact of Framing, Financial Literacy, and Advice" • Kristle Romero Cortés (UNSW Sydney), "The Stench of Failure: How Perception Affects House Prices" **Industry perspectives:** • Paul Rogan (Pension Boost) • Anthony Saliba (Deloitte)
12:30 – 12:35pm	**Workshop Closing** Hazel Bateman (UNSW Sydney)
12:35 – 1:30pm	**Lunch – Level 5, East Wing, Business School Building**

Presentation Abstracts

Interest Accumulation in Reverse Mortgage Loans with Termination Moral Hazard

Thomas Davidoff (University of British Columbia)

This paper proposes a way to make reverse mortgage loans more attractive to both borrowers and lenders by reducing the risk that the loan balance grows to exceed the value of the mortgaged home. In particular, loan amounts would be increased at origination to purchase a life annuity. The annuity would be used to pay down principal and interest on the loan while the borrower remains in the home. This effectively transfers loan balances from long after loan origination, when the borrowers' home is likely to be worth less than the outstanding balance, to earlier dates when the home is most likely worth more than the borrower owes. Numerical examples show that the costs to lenders of limited liability may be significantly reduced by this smoothing of the loan balance across time. Lenders may thus be able to provide more cash to borrowers at loan origination while offering lower fees and interest rates. This proposal may ease a significant problem with reverse mortgage loans, which seem like a promising way to improve retirement finance, but have not proven popular: borrowers may not appreciate the significant costs that limited liability imposes on lenders. The results are sensitive to assumptions about the relative interest rates on the annuity and the mortgage loan.

Optimal Consumption, Investment, Housing and Life Insurance Purchase Decisions for a Couple with Dependent Mortality

Colin Zhang (Macquarie University), Jiaqin Wei (East China Normal University), Ning Wang (Macquarie University)

In this paper we study an optimisation problem for a couple including two breadwinners with uncertain lifetimes. Both breadwinners need to choose the optimal strategies for consumption, investment, housing and life insurance purchasing during to maximise the utility. In this paper, the prices of housing assets and investment risky assets are assumed to be correlated. These two breadwinners are considered to have dependent mortality rates to include the breaking heat effect. The method of copula functions is used to construct the joint survival functions of two breadwinners. The analytical solutions of optimal strategies can be achieved, and numerical results are demonstrated.

Home Equity Release Strategies in a Two-Generation Model

Scott Shao, Hazel Bateman, Katja Hanewald (all UNSW Sydney, CEPAR)

This article studies the potential benefits of reverse mortgages for multi-generation financial planning. Our study extends beyond previous research that only considered the optimal use of reverse mortgages by individual retirees or couples. We develop a new multi-period simulation model that considers the welfare gains of both parents and children, house price risk, interest rate risk, uncertain long-term care cost and public pensions. The model compares two approaches to intergenerational wealth transfers: bequests and gifting. Our results show that the most beneficial use of a reverse mortgage is a combination of retirement income and gifting the down payment for a home to a child. However, customer data from a major Australian reverse mortgage lender reveals that gifting is not a common practice yet. This presents an opportunity for reverse mortgage providers internationally to increase awareness of the 'gifting function' of reverse mortgages, potentially addressing the low demand for these products.

Demand for Reverse Mortgages: Can Information Framing Address Behavioural Barriers?

Hazel Bateman (UNSW Sydney, CEPAR), Joshua Funder (Household Capital), Katja Hanewald (UNSW Sydney, CEPAR), Tin Long Ho (UNSW Sydney, CEPAR)

Retired households typically hold a large proportion of their wealth in housing. A reverse mortgage allows older homeowners to access this wealth without moving out of their homes. Economic theory suggests that reverse mortgages should be popular, but reverse mortgage markets worldwide are small. Using an online survey administered to a sample of around 950 Australian homeowners aged 60–80, we explore whether information framing designed to address complexity, mental accounting and narrow choice bracketing can address this "reverse mortgage puzzle".

Feeling Comfortable with a Mortgage: The Impact of Framing, Financial Literacy, and Advice

Susan Thorp (University of Sydney), Junhao Liu (Vanguard Australia), Julie Agnew (The College of William and Mary), Hazel Bateman (UNSW Sydney, CEPAR), Christine Eckert (University of Technology Sydney), Fedor Iskhakov (Australian National University)

The family home is the most important asset on household balance sheets, aside from human capital. Choosing a suitable mortgage is therefore critical to financial well-being but costly mistakes are common. We collect data in an online survey (2020; n=999) to test borrowers' comfort with, and understanding of, mortgage debt. We analyze the impact of financial literacy, mortgage broker advice and whether the loan is framed as a lump sum debt or an equivalent stream of repayments. We conjecture that participants' caution about loans and their ability to match lump sum debt to equivalent repayment streams will help them to choose a suitable mortgage. Results show that participants with high financial literacy are less comfortable with mortgage debt in general and also less sensitive to framing than those with low financial literacy. Literate participants are better able to match repayment streams with the equivalent lump sums. Survey responses indicate more uncertainty about future house prices among borrowers who intend to consult brokers than those who do not. Endogeneity-controlled regression analysis shows that consulting brokers leads to higher comfort with debt.

The Stench of Failure: How Perception Affects House Prices

Kristle Romero Cortés (UNSW Sydney), Mandeep Singh (Imperial College London), David H. Solomon (Boston College), Philip E. Strahan (Boston College, NBER)

In Australian real estate markets, about a third of properties are sold at auction. We show that properties that fail auctions sell later for a 2.6% discount. This effect increases for properties failing multiple auctions and when no bids are made. Consistent with a causal channel, the effect holds when auction failure is instrumented by the tendency of owners to anchor on nearby better properties (and thus set reserve prices too high). Prices cluster just below salient round numbers, and the discount fades over time, inconsistent with our effects reflecting unobserved property characteristics. We test for several mechanisms and conclude that most of the pricing discounts reflect stigma, which reduces potential buyers' willingness to pay.