Appendix – What drives bond yields
Part 6: Long-term projections of bond yields

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This appendix provides further technical detail to *What drives bond yields – Part 6: Long-term projections of bond yields*.

Section A1: Factors affecting savings and investment (and the natural rate)

The natural rate is the interest rate which clears the market for loanable funds. This is where lender's supply of savings is matched against borrower's demand for investment. Some of the factors that could impact the level of savings and investment, and how these might change over time are set out in Table 1.

Table A1: Potential drivers of the natural rate for Australia going forward

Population ageing

Influences…	Via affecting the…	Outlook	Natural rate impact	**Comment**
Supply of savings	Need to consume rather than save in retirement	Lower	Higher	More of the population reaching retirement age should, in the absence of a wage from working, see savings drawn down to fund consumption ('life-cycle hypothesis'). The extent of this will depend on how long people expect to live for, how strong their bequest motive is and what lifestyle they seek in retirement.
Supply of savings	Need to save rather than consume during working life	Higher	Lower	The level of savings during one's working years will be influenced by a range of factors including the level of earnings relative to the cost of living, investment returns on superannuation assets as well as how long people expect to live for once they retire, how strong their bequest motive is and what lifestyle they seek in retirement.
Supply of savings	Dependency ratio	Higher	Lower	The Dependency Ratio (that is, the share of the population that is outside of working age – less than 14 years old and more than 65 years old) is expected to increase which will require those of working age to save more to support their dependents.
Supply of savings	Demand for safe assets	Higher	Lower	Population ageing, regulation as well as investment liberalisation and diversification have seen greater demand for safe assets. This should continue, including in response to what is becoming a more uncertain world.
Demand for investment	Capital per worker	Lower	Lower	Population ageing influences the amount of capital per worker. If the population is ageing, then it will increase the amount of capital per worker. This is fine up to a point where workers have too much capital (that is, at some point there is diminishing marginal returns to capital). After this point firms will limit their purchases of capital to maximise their rate of return on it.
Demand for investment	Cohort of workers in career prime	Lower	Lower	As the population ages fewer workers will remain in the most innovative and productive age cohorts. This may mean less capital per worker.
Demand for investment	Capital to labour ratio	Higher	Higher	Population ageing will see labour become less of an input into the production process. Increased investment in automation may be one solution to offset this impact.

Labour force growth

Influences…	Via affecting the…	Outlook	Natural rate impact	Comment
Demand for investment	Capital per worker	Lower	Lower	Growth in the labour force influences the amount of capital per worker. If it is decreasing, then the amount of capital per worker will increase. This is a positive until workers are left with too much capital. At this point there will be diminishing marginal returns to capital and firms will limit purchases of capital to maximise the rate of return on capital.
Demand for investment	End demand	Lower	Lower	Lower labour force growth means lower labour income growth and lower demand for investment to service that level of income.
Demand for investment	Relative price of labour to capital	Higher	Higher	Labour force growth will influence the price of labour relative to capital and hence the demand for capital relative to labour. For example, if labour costs are expected to increase faster than those related to capital, then capital will become relatively cheaper and demand for investment will increase.

Technology

Influences…	Via affecting the…	Outlook	Natural rate impact	Comment
Demand for investment	Productivity of labour and capital	Higher	Higher	If technological improvements can make labour and capital more productive this will improve profitability and encourage firms to invest to take advantage of this.
Supply of savings	Corporate and household income	Higher	Lower	Technological improvements could enhance corporate profitability beyond the level needed for re-investment or distributions to owners. This could see surplus income saved. The same could be true for gains due to higher productivity that take labour earnings beyond the level needed to meet intended essential and discretionary spending.

Market power

Influences…	Via affecting the…	Outlook	Natural rate impact	Comment
Demand for investment	Willingness to invest	Lower	Lower	Greater market power means lower competition and less need to invest to enhance or preserve market position. While there are efforts underway around the world to reduce industry concentration, it is uncertain at this stage how successful these will be. Given this, a reasonable assumption is the status quo will continue.
Supply of savings	Willingness to save	Higher	Lower	Firms with large market power are highly profitable and with less of a need to invest due to the lack of competition they can save more.

Uncertainty/risk aversion

Influences…	Via affecting the…	Outlook	Natural rate impact	Comment
Demand for investment	Certainty over investment’s cash flows	Lower	Lower	Elevated uncertainty in the post-pandemic period related to geopolitics as well as economic policymaking could see less certainty over an investment’s returns. This could reduce firms’ willingness to invest.
Supply of savings	Precautionary savings	Higher	Lower	Higher savings in the presence of uncertainty.

Price of capital goods

Influences…	Via affecting the…	Outlook	Natural rate impact	Comment
Demand for investment	Capital that can be bought from a given level of savings	Less deflation	Lower	Capital goods prices are likely to be higher going forward given the re-organisation of supply chains and that it is becoming more difficult for Moore’s Law to hold. Higher prices may deter investment in the items.

Climate change

Influences…	Via affecting the…	Outlook	Natural rate impact	Comment
Demand for investment	Capital stock	Higher	Higher	Disruptive climate events could damage the capital stock. Investment may be needed to rebuild or enhance resilience.
Demand for investment	Capital stock	Higher	Higher	More investment needed on new technologies and infrastructure to transition to cleaner sources of energy to avoid further climate change.
Demand for investment	Capital stock	Lower	Lower	More unpredictable and severe climate events could create uncertainty over future operating outcomes and reduce firms' willingness to invest.
Demand for investment	Productivity	Higher	Higher	There could be positive spillovers from technological developments realised during the energy transition.
Demand for investment	Productivity	Lower	Lower	Reconstruction from climate related damage to the capital stock might re-direct resources away from more productive uses.
Supply of savings	Productivity	Lower	Higher	Higher temperatures have been found to be associated with lower productivity. If productivity were to fall then, all else equal, earnings would decline and so too would savings.
Supply of savings	Willingness to save	Higher	Lower	Increasingly variable weather conditions could see additional savings to fund provided or self-insurance.

National defence

Influences…	Via affecting the…	Outlook	Natural rate impact	Comment
Demand for investment	Capital stock	Higher	Higher	Higher investment related to national defence will increase national government investment.
Demand for investment	Productivity	Higher	Higher	There could be positive spillovers from technological developments realised from manufacturing of new defence materiel.
Demand for investment	Productivity	Lower	Lower	Defence materiel production might re-direct resources away from more productive uses.

Public spending

Influences…	Via affecting the…	Outlook	Natural rate impact	**Comment**
Supply of savings	Willingness to save	Higher	Lower	Larger government borrowings will, all else equal, require higher rates to induce savers to lend. This will see the supply of private savings increase. These could also do so under the assumption that higher taxes will be needed in the future to repay this debt ('Ricardian Equivalence'), although the evidence for this proposition is mixed.
Demand for investment	Investment levels	Higher	Higher	Higher government investment could boost the capital stock, potential growth and thus the natural rate.
Demand for investment	Investment levels	Higher	Lower	Higher government investment could crowd out private sector investment and lead to a less productive capital stock in aggregate.

Source: Various studies, QTC Economic Research

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