

# Mark Christensen

Position	Associate
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#### Position

Associate, Synergies Economic Consulting

## Qualifications

Bachelor of Business Master of Financial Management Senior Fellow – Financial Services Institute of Australia CPA

## **Career History**

Mark is currently a senior lecturer in finance at QUT. He is also co-author of Australia's leading corporate finance text and helped develop the methodology used by the AGSM for the estimation of betas. He has extensive experience in valuation and issues related to valuation including cost of capital, access pricing and real options.

Much of Mark's experience centres around valuations. Most valuations require the estimation of risky cash flows and discounting to reflect risk. Mark has facilitated a number of risk management workshops designed to estimate cash flows and to consider the range of cash flows. He has done much work in derivation of the appropriate discount rate used to discount the cash flows. He has been involved in a range of valuations including forests, dams, rail networks and power stations. Some valuations have been unique where he developed a model to value crime while others have been more traditional application, for example, valuing oil rights.

Recently Mark has been providing advice to Royal Dutch Shell, Europe's largest corporation and one involved in the natural resources industry. The advice related to the upstream exploration and production operations of the organisation and it covered a variety of functional units. Advice was provided regarding the management of the contracting and procurement process which was valued at USD 30 billion per annum, the risk management of exploration projects having a capital



value of up to USD \$26 billion and project valuation and also value adding operational issues.

During the period of consultancy, Mark was required to analyse and resolve a number of valuation issues. Future cash flows are subject to risk so key in the analysis was the identification of risks, quantifying the risks, mitigating the risks and managing the residual risks through optimal contracting processes. The valuation advice was provided to a variety of gas and oil businesses and in a number of countries including Russia, Nigeria, United States of America, England, Middle East and Asia. The business type and the region impacted upon the type of advice provided. What was applicable for oil production in Nigeria was different to that for an LNG plant in the Middle East.

#### **Consulting experience**

Some of Mark's assignments include:

- provision of advice to Royal Dutch Shell. The advice was designed to improve the scoping of new explorations so that the final investment decision was undertaken with greater certainly. This provided the opportunity to add greater value to the organisation. The two year contract focused upon the final investment decision and included the following assignments;
  - the valuation of embedded derivatives in oil rig construction contracts in Sakhalin Russia;
  - the analysis of oil sharing production agreements with governments in Lagos Nigeria;
  - provision of advice regarding production feasibility/valuation analysis in The Hague Netherlands;
  - provision of advice regarding the financial evaluation of major contractors in Houston Texas;
  - provision of advice regarding risk mitigation techniques in contracting and procurement processes for LNG businesses in Dubai UAE;
  - advice regarding a probabilistic approach to the analysis of risk in oil feasibility/valuation studies in Kuala Lumpur; and
  - provision of advice regarding appropriate contract types in oil contracts with governments in London.
- provided risk mitigation advice designed to add value to QR's coal business. A number of derivative instruments were used to mitigate price risk. The risk needed to be valued as part of the process



- provided property valuation advice to Macquarie Bank. The advice centred around the estimation of cash flows and the appropriate methodology to value the cash flows
- valued numerous share options as part of executive remuneration packages for a variety of companies. Both the Black Scholes option pricing model and the binominal model were used
- provided valuation advice to Colonial Mutual regarding the valuation of numerous shopping centres. The advice was regarding the appropriate valuation methodology
- provision of advice regarding the valuation of intangible assets including brandnames and business names. The advice was provided through the Australian Marketing Institute both in Australia and New Zealand
- provided advice regarding the appropriate methodology and discount rate to use to value the water assets. The advice was provided to both KPMG and Seqwater
- provided advice to Queensland Treasury regarding the appropriate discount rate to use to value the cash flows generated by drought and non drought water assets
- provision of advice to Perth Airport regarding the appropriate discount rate to use to value services provided. In addition to the advice, an audit was conducted of the pricing model developed by Perth Airport
- calculated an appropriate discount rate for SEQWater to use for analysing both bulk water storage and wastewater using a WACC methodology. Considerations included the appropriate capital structure, the appropriateness of using CAPM, developments in the estimation of beta and the value of the inputs. Recent regulatory decisions were also reviewed as part of the analysis
- provision of advice for clients of QTC regarding the valuation of business units. The business units included ports, rail networks, power generation and distribution. The advice encompassed the valuation techniques, risk management, calculation of discount rates
- acted as an expert witness regarding the appropriate discount rate to be used to price the provision of port services
- developed a model that valued crime and the cost to society of recidivism. The advice was provided to the Department of Communities
- developed a financial model for SEQWater that uses project analysis cash flows as inputs. The cash flows that are discounted by the WACC are reflected in the



Income Statement, Balance Sheet and Cash Flow Statement. The financial reporting effect can easily be seen when factor inputs are changed

- provided valuation advice to QR regarding the valuation of clusters of rail networks, the packaging and securitisation of the cash flows associated with the clusters. Real option valuation techniques were used in the valuation process
- provided comments to Sunwater regarding the value of the asset beta, the value of gamma and the appropriate formula to use when undertaking asset impairment decisions
- provided real option valuation advice to a number of GOCs. While it is difficult to value using real options, the model provides and insight into value drivers. Identifying value drivers and the distribution of these drivers allows for risk mitigation
- provided an analysis to Gladstone Area Water Board of what constitutes systematic risk and non systematic risk. Systematic risk elements are reflected in the beta calculation when using WACC and non systematic risks are reflected in the cash flows
- provision of advice to the Queensland Audit Office regarding the valuation of forests and self generating assets
- provided Brisbane Water a valuation of waste water plant to calculate lease payments to the end user of waste water. The model required calculation of the WACC, the effect of risk sharing and the calculation of the lease payment itself
- reviewed a number of submissions received by the QCA and have seen many suggestions regarding the calculation of WACC and the effects of regulatory decisions
- developed a model for MIM that is used to value the storage and supply of water. WACC was a component of the valuation
- provided a valuation to Brisbane Water of a stand alone replication of water assets to supply a major end user
- provided data to NECG for the calculation of WACC to be use for water and wastewater assets and the pricing of the supply of water
- provided QTC with a calculation of a WACC for a number of industry types with special consideration given to the appropriate duration for a firm with respect to non financial assets, liabilities and equity



- calculated the WACC and appropriate capital structure for each of the business divisions for QR. The WACC was used as the appropriate hurdle rate in undertaking project analysis
- provided Queensland Treasury with a methodology to value infrastructure business units. Consideration was given to the estimation of cash flows and the appropriate discount rate. A major part of the advice was related to the identification, quantification and mitigation of the risk associated with cash flows of the business
- calculated the WACC for a regulatory submission. The calculation included consideration of the appropriate proxy for rf, the appropriate maturity of the proxy, removal of spikes from the yield, he calculation of the MRP, analysis of the MRP over varying time intervals, consideration of whether there has been a structural change in the MRP, calculation of beta, methods to improve the beta estimate, an analysis of the cost of debt using a quantitative approach and consideration of debt and equity raising costs
- provided Queensland Treasury with an analysis of the calculation of beta ie. weekly v monthly observations, adjusted v raw beta calculations, portfolio approach v pure play, value of analysing comparators from outside the industry
- provided advice to Stanwell regarding the valuation of power stations. The power stations were valued over a 60 year time horizon
- provided advice regarding a rail network in Western Australia. The advice provided an assessment of the appropriate discount rate, the calculation of the cash flows and the appropriate methodology
- provision of specialist valuation advice to middle tier accounting firms which do not have the capabilities in-house. A range of investments have been valued including tourist operations, software, medical practices, training businesses and many other professional operations
- provided over 100 valuation courses for a variety of participants. Most participants were from infrastructure companies and the emphasis was long life assets