Student Name:	S.I.D Number:
Mungki A. Adil	0132116
Jimmy F. Fakhruddin	0144212
Tanzil	0153363

Subject	Australian Capital Market & Finance
Lecturer's Name	Alex Frino
Date Submitted	May 17th, 2001
Tittle of Assignment	**VALUATION OF QANTAS AIRWAYS Ltd.**

Faculty Of Economics

2001

Qantas is Australia's leading brand. In January 2000 Qantas was named as the Australian company with the best corporate image by the *National Business Bulletin* for the 11th consecutive year.

Address
203 Coward Street
Mascot NSW 2020
AUSTRALIA

Phone +61 2 9691 3636
Fax +61 2 9691 3339
SITA SYDXLQF
Telex 20113
www.qantas.com.au

History

It was founded in the Queensland outback in 1920. Qantas is recognised as one of the world leading long distance airlines.
Qantas is the world's second oldest airline, and the oldest airline in the English-speaking world.

Substantial Shareholders

British Airways Investment (Australia) Pty Ltd. (25%)
Principal Mutual Holding Company (8.97%)
Capital Group Companies, Inc. (5.05%)

Nature of Business

- International and Domestic air transport services

  Qantas is Australia's leading domestic airline with 59 destinations and 450 flights everyday across the states and mainland territory, and 540 international flights every week serving to 65 destinations over 36 countries. With 124 destinations in total, Qantas operates a core fleet jet of 101 aircraft, comprising Boeing 737s, 767s, and 747s and has regional airlines operating a mixed fleet of 46 aircraft.

- Qantas Holidays

  Qantas Holidays is the largest leisure travel wholesaler in Australia and offers an extensive range of products covering the Qantas network.

- Flight Catering

  Qantas Flight Catering Holdings (QFCH) is a wholly-owned subsidiary that operates catering businesses.

- Engineering and Maintenance

  Qantas owned one of the largest engineering and maintenance facilities in the Asia Pacific region.

- "The Qantas Frequent Flyer" and "One World"

  The Qantas Frequent Flyer program is the largest Australian-based airline loyalty program with 2.4 million memberships. Qantas has also joined an alliance with other international airlines, namely British Airways, American Airlines, Cathay Pacific, Iberia, Finnair, Lan Chile, and Aer Lingus. This alliance is known as "OneWorld" for which they now share in their frequent flyer programme.

- Information Technology

  Qantas Information Technology is involved in initiatives such as Internet-based offerings for consumer and corporate customers and travel partners, new consumer businesses supported on-line, purchasing partnerships; and the continuing development of the Qantas web site at ***www.qantas.com.au***.

Management

Chief Executive Officer
Mr Geoff Dixon

Senior Executives
Mr Peter Gregg
Chief Financial Office

Mr Jon Borghetti
Executive General Manager
Sales and Distribution

Mr Denis Adams
Executive General Manager
Marketing

Mr Paul Edwards
Executive General Manager
Network Management

Mr Steve Mann
Executive General Manager
Customer Services

Mr David Forsyth
Executive General Manager
Aircraft Operations

Mr Narendra Kumar
Executive General Manager
Subsidiary Businesses

Mr David Burden
Executive General Manager
Technology and Services

Mr Brett Johnson
Company Secretary

Mr Grant Fenn
Deputy Chief Financial Officer

Mr George Elsey
Group General Manager
Human Resources

The Cash Flows and Profitability Analysis

In its Annual Report for the year ended 30 June 2000, Qantas Group announced that it increased Net Profit Before Tax by 15.1%, up from $A 662.5 million to $A 762.8 million. Operating Profit Before Tax of $A 705 million was 17.2% higher from the previous year. Net Profit After Tax rose by 23.0% to $A 517.9 million. Revenues also increased by 7.8% to $A 9.1 billion. Most of the revenues came from passenger and airfreight.

Expenditures were distributed to sectors like manpower and staff related (27.7%), aircraft operating (20.1%), selling and marketing (12.7%), and others. It was an increase of 7% from prior year to $A 8.2 billion.

Qantas's Earning Per Share rose by 20.9% from $A 0.35 to $A 42.8. This most probably was a dikrect result from the increase in net profit in this period. Its Return on Shareholder's Equity also showed an impressive increase in the rate of return, namely 13.8% to 18.1%.

Market Analysis

Strength

Qantas has for a long time been the premier Australian airline company. It was founded in 1920 and has been recognised throughout the world as "The Australian Air" carrier. The company has strong brand image and has strongly loyal customer base. Qantas is dominant in the domestic market in term of market share and financial strengths.

Threat

Airlines around the world have been subjected to some common negative factors:

- Signs of a general economic slowdown
  Morisot (aviation analyst at Goldman Sachs) and Hanson (Westpac Investment Management) say airlines companies are cyclical and often the first to feel a downturn in economic activity
- Rising Fuel Costs
  In the year to June last year (2000), the average price of jet fuel was USD 32 a barrel. In the previous year it was USD 18.50.

Qantas was also subjected to some problems involving the domestic aviation industry:

- The currency weakness

  The weakening of Australian dollar against American dollar has made currency hedging difficult since the Australian dollar is now stronger against the Euro.

- Increase in competition

  It has three domestic competitors. One of the three, Impulse Airlines is currently subject to a take-over offer by Qantas and subject to ACCC –Australian Competition and Consumer Corporation's approval will end up being an asset rather than a threat). The other two competitors, Ansett and Virgin currently put pressure on Qantas's profit.

- The government policy

  The Government has a very liberal policy of deregulation up the domestic and international route to foreign-owned airlines.

The Corporate Valuation

Overview of the CAPM

The CAPM provides a theoretical basis for determining a discount rate that reflects the expected or required return in equities. The rate of return represents the cost of equity that is the relevant measure for estimating a company's weighted average cost of capital (WACC). The CAPM is also based on the assumption that investors require a premium for investing in equities rather than in risk free investments (such as Australian Government Bonds).

For deriving the discount rate using CAPM formula is as follows :

$$E(Re) = R_f + \beta(e)\, E(Rm-R_f)$$

Where

E(Re)	is the require return on the equity capital
Rf	is the risk free rate
Beta(e)	is the beta factor
Rm	is the expected market return
E(Rm-Rf)	is the market risk premium

The reliability of the simple model above is limited, including assumption about constant market risk premium. But so far, this model is based on a sophisticated and rigorous theoretical analysis, and it would be able to treat as a general guide.

Stock History

ASX Code : QAN
Industry : Airlines
Market Cap ($M) : 4,166.04
52 week range ($) : 2.48 – 4.16

Cost of Equity Capital

The Cost of Equity Capital that has been estimated by the reference to the CAPM is 10.76%[5]. The assumptions upon the calculation of the discount rates are :

- Risk Free Rate

  For the valuation, 6.16% has been adopted as a risk free rate. The risk free rate approaches the yield to maturity on 10-year Treasury bond obtaining on 30 June 2000, the date of Qantas Annual Report 2000 financial year. The submit of 10 year Treasury bond based on consistency of its yield with the fact that it is been granted by the Federal government and the maturity is applicable for analysing one year weekly data.

- Market Risk Premium

  The market risk premium is a measure of the risk associated with holding a market portfolio of investments. The premium measures the difference between the expected return from holding such an investment and the risk free rate.

  A market risk premium of 6% has been assumed to apply based on estimated in Australian studies measured over more than 100 years data. But this estimation over a very long period is still subject to significant statistical error.[1]

- Beta Factor

  The Equity Beta measures the risk associated with holding an individual security relative to the market as a whole. It also measures the systematic risk of a stock. The Equity Beta is calculated between the covariance of its return and the return of on a well-diversified market portfolio divided by the variance of its return on a well-diversified market portfolio.

  Qantas's Beta Factor is 0.7659028 [2]. Since Beta Factor is less than 1, it means that Qantas's risk is less than market. The calculation is based on assumptions:

  - Time Period of Stock's Price Calculation

    Stock price collected on Tuesday from 5 April 2000 to 28 March 2000, weekly based. Calculating historical data using Tuesday stock price based on the condition that the market price would be tend to stable, as it is a median day of the week. This is supported by illustration stated by Bruce I. Jacobs and Kenneth N. Levy on page 142 :

    "The market has a tendency to end each week on a strong note and to decline on Mondays. It is often referred as "the weekend" or to "Blue Monday" effect"

Qantas contributed to 0.74 on S&P/ASX 200 liquidity weighted index

InTech Financial Services shows 62 per cent of Australia's active fund managers and 75 per cent of passive managers expect to use the new S&P/ASX 200 index as the benchmark for performance measurement of their pooled domestic share funds

The Sydney Futures Exchange (SFE) has selected the S&P/ASX 200 index as the basis for its new SPI® replacement contract

- The Stock Market Index

  ASX 200 Index is using derived from its origin of represents the most 200 actively trading stocks in Australian Stock Exchange. The S&P/ASX 200 represents 88.21% of the ASX's domestic capitalization.

- Qantas Dividends Payout

  Every year Qantas has been paid its dividends three times, with Ordinary Dividends of each 11 cents per share fully franked twice, and a Special Dividend of 37 cents per share declared to release surplus franking credits.

- Adjusted Index

  Adjusted ASX 200 Accumulation Index demonstrates one of suggested method of producing an 'adjusted' ASX 200 index under and imputation tax system.

Cost of Debt

The cost of debt represents the expected return built into the cash flows of the debt security by the purchasers of the debt.

$$\text{Cost of Debt} = \frac{\text{Net Interest}}{\text{Average Net Debt}}$$

Where

Net Interest = Interest paid less interest received

Average net debt = Reported book value of debt less cash

It has been estimated that the cost of debt for Qantas is 11.63%[4]

Weighted Average Cost of Capital (WACC)

In generating a value of the WACC under imputation, it has been adopted formula as described below :

$$r_i = r_e \cdot \frac{(1-T)}{(1-T[1-\gamma])} \times \frac{E}{V} + r_D \times (1-T) \times \frac{D}{V}$$

Value of the firm = $1,500 M
Value of equity = $1,200 M
Value of each share = $9.91

Where assumptions of :

T = the effective rate of company tax on the cash flows of the company (i.e. 36%)

γ = 1; when all franking credits are being able to be used by stockholders.

D = market value of debt

E = market value of equity

V = market value of the firm (D+E)

It has been estimated that WACC is 7.12 % [6].

Calculation of Free Cash Flows

The Free Cash Flows after-tax is calculated for valuing a company, which is determined by the cash flows distributed to its shareholders and debt holders. The method used is by discounting the free cash flows with the company cost of capital. There are also calculation for The Forecasting of Free Cash Flows after-tax with the assumptions :

- Forecast for the future free cash flows from 2001 to 2005, and beyond 2005 assumed to growth perpetuity.
- The company cash receipts increase in line with forecast economic growth by 6%.
- All other relevant cash flows increase in line with forecast inflation by 3%.

It has been estimated that the free cash flows after tax is $1,067,584,000 .[3]

Sensitivity Analysis

The following table shows the effect of changing the parameters used in the calculation.

The increase on Risk Premium by +0.01 (1 percent) will result in change to the Cost of Equity of 0.007659028 and WACC of 0.002852.

The change in Risk Free Rate of +0.01 (1 percent) will result in change to the Cost of Equity of 0.01 and WACC of 0.003723.

The change in tax rate of +0.01 (1 percent) will result in a change to the Cost of Equity of 0.000732454, change in WACC of -0.000844, change to the Free Cash Flow after tax of - $ 19,901,410 and change in Beta of 0.01221.

The change in Growth rate of +0.01 (1 percent) will result in change to the Free Cash Flow after tax of $ 58,026,240.

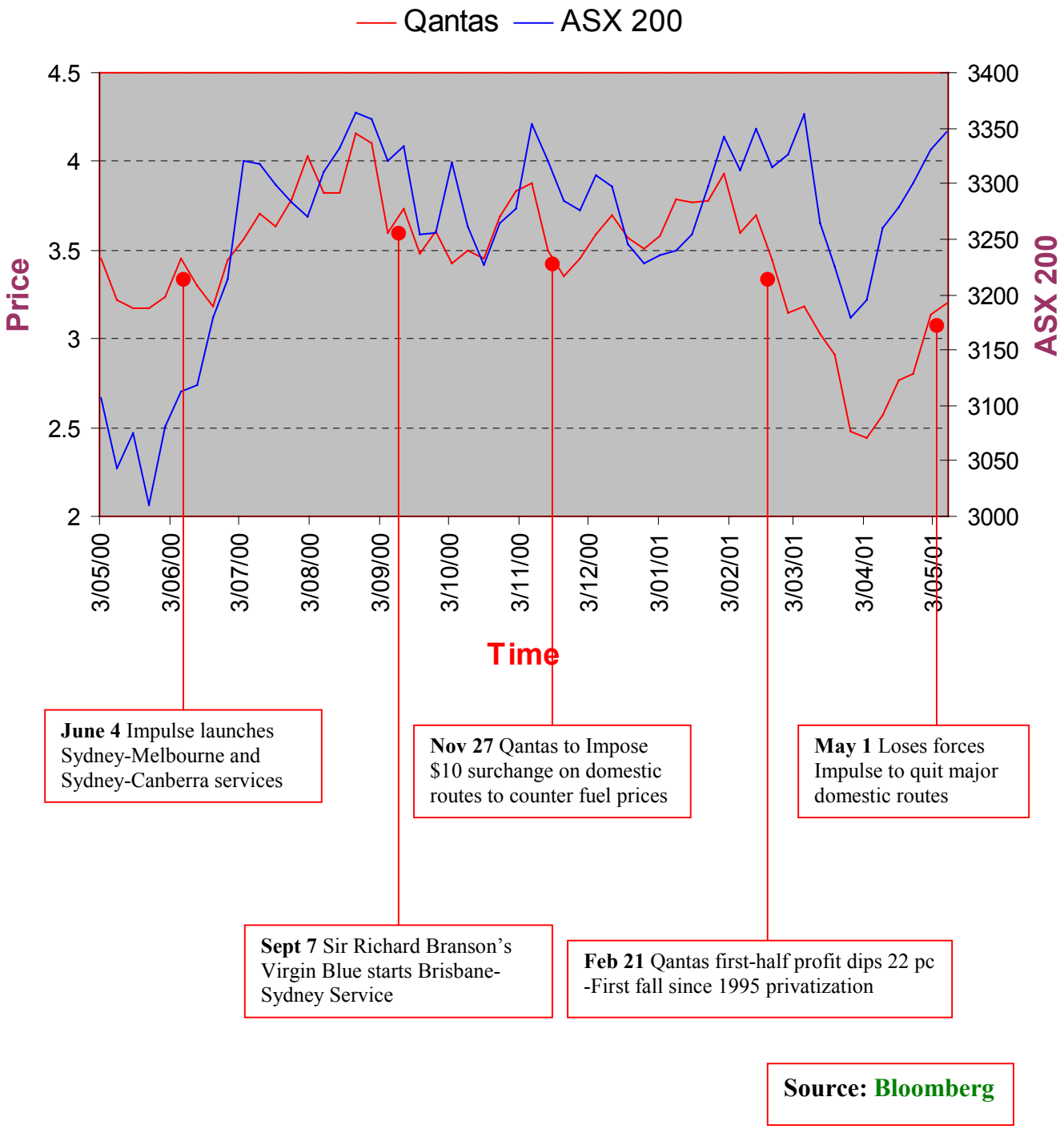
The change in inflation will result in a change to the Free Cash Flow after tax of –$ 47,350,400.

The Change in (change +/- 1 denomination)	Resulted change in				
	Cost of Debt	Cost of Equity	WACC	Free Cash Flow	Beta
Risk Premium	-	0.007659028	0.002852	-	-
Risk Free Rate	-	0.01	0.003723	-	-
Tax Rate	-	0.000732454	-0.000844	-19901410	0.01221
Economic Growth Rate	-	-	-	58026240	-
Inflation	-	-	-	-47350400	-

Note
Assumptions :
Change is calculated in one variable at one time
(ceteris paribus)
Calculation of change in:
- Beta is in 0.1 denomination
- Risk premium is in 0.01 denomination
- Tax rate is in 0.01 denomination
- Growth rate is in 0.01 denomination
- Inflation is in 0.01 denomination

The following chart shows the price movement of Qantas stock price and ASX 200 index. Also included in the chart relevant news happened in Australian aviation industry from May 2000 to May 2001.

Share Price History



Source: Bloomberg

Appendix

1. According to case study by Grant Samuel on AAPT Ltd shows that the market risk premium in Australia is 6% (using geometric average), measured over 100 year of data.

2. The calculation of adjusted ASX 200-Accumulation Index is based on the method used by Frino, Alex, 2001, p196-197. The calculation as follows:

   - Index relative = $\frac{\text{Index}_{t}}{\text{Index}_{t-1}}$
   - Cash Dividend Yield = ASX 200 Accum. index relative - ASX 200 index relative
   - Cash plus franking div. yield = $\frac{\text{Cash Dividend Yield}}{(1- 0.36)}$
   - Return on index (adjusted) = (Price relative of ASX 200 + Cash plus franking div. yield) –1
   - ASX 200 (adjusted) = (1 + return on index (adjusted) X (adjusted ASX 200_{t-1})

   The calculation of beta as follows:

   - Stock Return (r_{it}) = $\frac{S_t - S_{t-1} + d_t}{S_{t-1}}$
   - Index Return (r_{mt}) = $\frac{I_t - I_{t-1}}{I_{t-1}}$
   - Bond Return ($r_{f,t}$) = $\frac{rf}{5200}$
   - Excess Stock Return (Y) = $r_{it} - r_{f,t}$
   - Excess Index Return (X) = $r_{mt} - r_{f,t}$
   - Variation in excess stock return = $(Y- \bar{Y})$
   - Variation in excess index return = $(X- \bar{X})$
   - Product of Variation in excess return = $(Y- \bar{Y}) \times (X-\bar{X})$
   - Covariance = $\frac{\Sigma_{t=1} (Y- \bar{Y}) \times (X-\bar{X})}{n}$
   - Variance = $\Sigma_{t=1} (X- \bar{X})^2$
   - Beta (β) = $\frac{\text{Covariance } (r_i - r_f, r_m - r_f)}{\text{Variance } (r_m - r_f)}$

According to the historical data of Qantas's Stock Price and ASX 200 Accumulation Index :

Covariance	0.047956383
Variance	0.062614191

$$\text{Beta} = \frac{\text{Covariance}}{\text{Variance}} = 0.7659$$

3. Using the cash flow of Qantas Airways Limited for the year ended 30 June 2000, the Free cash flow calculation is as follows:

Free Cash Flow	($M)						
Cash Flow	**2000A**	**2001F**	**2002F**	**2003F**	**2004F**	**2005F**	**Beyond 2005F**
Cash receipts from operations	9066.6	96105.96	10187.23	10798.47	11446.37	12133.15	610644.85
Less:							
-Cash payment from operations	7135.8	7349.87	7570.37	7797.48	8031.40	8272.34	165880.18
- Net Capital Expenditure	262.7	270.58	278.69	287.05	295.67	304.54	6106.77
Free Cash Flows	1668.1	1990.14	2338.16	2713.92	3119.29	3556.26	438657.89
Free Cash Flows After Tax (free cash flows x (1 – 0.36))	1067.58	1273.69	1496.424	1736.91	1996.34	2276.01	280741.04

The calculation on forecasting the element of cash flows as follows:

- Forecast Cash Receipts from Operations (A) = $\frac{\text{Cash receipts from operation 2000}}{(1+\text{Growth})^n}$
- Forecast Cash Payment from Operations (B) = $\frac{\text{Cash payment from operations 2000}}{(\text{Inflation})^n}$
- Net Capital Expenditure (C) = $\frac{\text{Net Capital expenditure 2000}}{(\text{Inflation})^n}$
- Free Cash Flows = A – (B + C)

Balance Sheet	**2000**	**1999**
Cash	118200000	43000000
Current Liabilities Borrowings	582400000	496600000
Non Current Liabilities Borrowing	2530800000	2577700000

Cash Flow

Cash Flow from Operating Activities	**2000**	**1999**
Interest Received	0	80400000
leaseback interest	352000000	
Interest Paid	352000000	168900000

4. Cost of Debt

Net Interest	=	352000000
Net Debt 2000	=	2995000000
Net Debt 1999	=	3031300000
Average Net Debt	=	3013150000
Cost of Debt 2000	=	0.116821267
Avr 10-year bond yield		0.06215
Risk Premium		0.054671267
Current Cost of Debt		0.116271267
Value of The Firm		**$15,000,904,132.40**
Value of The Equity		**$12,005,904,132.40**
Value of each share		**$9.91**

5. Cost Of Equity

Risk Free Rate		0.0616
Market Risk Premium		0.06
Beta		0.765902779
Cost Equity =		0.107554167

6. WACC

Shares on Issue		1211059282
Shares Price		3.44
Market Value of Equity	E	4166043930
Net Debt	D	2995000000
Market Value of the firm	V	7161043930
WACC		0.071167977

References

1. Frino, A., T. Cusack, and K. Wilson, ***An Introduction to Corporate Finance,*** Prentince Hall, (2001)

2. Porter, Gary A., and Curtis L. Norton, ***Financial Accounting,*** Harcourt, (2001)

3. Jacobs, Bruce I., and Kenneth N. Levy, ***Equity Management : Quantitative Analyze for Stock Selection,*** Prentince Hall, (2000)

4. ASX Announcement on 9 march 2000.
   http://www.asx.com.au/shareholder/pdf/CompanyIndex.pdf

5. Reserves Bank of Australia
   http://www.rba.gov.au/Statistics/OP10_update.xls

6. Sydney Morning Herald on April 10 2000
   http://www.smh.com.au/news/0004/10/business/business09.html

7. Sydney Futures Exchange News
   http://www.sfe.com.au

8. Historical price and indices
   http://www.investorweb.com.au

9. Grant Samuel Case Study on AAPT Ltd.
   http://www.aapt.com.au/investor/files/gsamuelrpt/appendix1.pdf

10. Dividend Announcement from Australian financial Review 2000 – 2001