

Submission to The Board of Taxation regarding Employee Share Schemes

There are two phases in the process of participation in employee share and option plans (ESOPS).

The first is the grant of the rights and the second is the realisation process. The latter does not always occur.

At the time of grant there is usually a "reward" component in what the employee receives. A reward for past and / or expected future services. This is the component which the valuation process should be trying to assess.

Following the grant there is usually a period - often many years - during which the underlying asset (eg the share) may increase or decrease in value up to the time when that asset fully vests in the employee and can be realised.

In the final realisation proceeds these two components - reward (ordinary income) and gain / loss (CGT) need to be very clearly defined.

Example

For example, on 1 July 2009 Fred is granted options over the employer's shares. At that time the shares are trading at \$2.00 and the exercise price is set at \$2.00 exercisable at any time on or after 1 July 2012 but no later than 1 July 2019. It could be argued that there is "value" for the employee in such a grant and this value could be determined at the time of grant. Such value is arguably in the fact that the employee pays nothing to obtain the option which - if it was immediately tradable (which it never is) could realise an amount that would be assessable to the employee. As it transpires, the shares increase in value over time and on 1 July 2012 when the shares are trading at \$3.00, Fred exercises his options and immediately sells the resulting shares. His cash profit is \$1 BUT this needs to be divided between ordinary income (the reward component) and Capital gain (the increase in value since grant.)

Problems with the CGT rules

The CGT rules interfere with the above analysis because the asset realised (the share) will not have been held for the required 12 months to qualify for the 50% CGT discount (although it will be clear that Fred has had this asset "at risk" for 3 years !) This aspect of the CGT rules needs to be reviewed and an appropriate amendment made - otherwise any attempt to determine the "value" - the ordinary income component will achieve nothing useful for Fred as the whole of the net amount (\$1.00) realised will be assessable without CGT discount relief.

In cases where an option is exercised, then the holding period of the resulting asset (eg shares) for CGT purposes should include the holding period of the options. This will require a law amendment.

Problems with taxation before realisation

Problems arise where an amount may be included in assessable income before there is any realisation arising for the participation in the plan.

For example, an employer tells an employee that if he continues to be an employee for 3 years he will pay the employee a bonus of \$X. There is currently no law that can cause any amount to be included in the assessable income of that employee as a consequence of that promise before the bonus is actually received. BUT if this promise is expressed as participation in an ESOP the current law may include amounts as assessable income before the shares are realised. This outcome offends the generally accepted (cash basis) rules regarding the taxation of employees.

No taxation before realisation !

The valuation

As mentioned above, the purpose of the valuation rule is to determine the ordinary income component of the amount to be included in assessable income. The balance of the amount realised less the cost-base is the capital gain component. There may be occasions when one –or the other – component is NIL and in some cases neither component will arise as the outcome may have been a “loss”.

So, a great deal of pressure is put on the accuracy of the valuation methodology.

The valuation methodology will need to include a very wide range of “variables” to recognize that the asset will not be exchange tradable or readily realizable in any market (employee shares and options are usually not tradable and will be either realised or lapse / lost) and that there are many circumstances that can result in the participation being cancelled or the rights being lost.

Some examples of the “variables” are:-

- 1 - The employee must continue in employment for a particular period or for the whole period up to the issue of the share without restrictions on its sale.
- 2 – For an option, an amount may or may not be payable for the option (as distinct from an exercise price) and that amount may be payable on the happening of a particular event or at a particular time.
- 3 – For an option, the exercise price may be variable according to time or market or other outcomes.
- 4 – For an option, the share resulting from exercise may be required to be immediately sold (often back to the issuing company) at a calculated price or at market (if there is one).
- 5 – Dividends may or may not be payable during the period of participation in the plan. In some cases the dividends may be required to reduce any amount owing for the plan asset.
- 6 – The plan asset may be “forfeited” if the issuing company financial attributes fall within defined limits (eg the company is put into administration).
- 7 – The employee is in default under the plan rules (eg – has not paid amounts due in respect of the plan asset).
- 8 – The asset may be worth less than the amounts payable to acquire it at the time the entitlement to acquire it without restrictions on its sale arise (ie – the asset is “under-water”).
- 9 – For an option, the exercise dates may be very short (eg- one week or one month within a particular period).
- 10 – Neither the asset nor the benefit of participation may be sold until the asset is transferred unfettered to the employee. This is usually the case.
- 11 – There may be a very thin or virtually no market for some shares – especially unlisted shares – or pre-emptive rights may limit the value of the shares.

It will be recognized that the existence of one or more of the above variables will render useless the Black-Scholes model for valuing exchange traded shares.

Summary:

1 – There should be no amount included as assessable income before the employee has realised the asset which was the subject of the participation in the ESOP (plan). “Receivability without receipt is nothing” ! This is particularly the case for employees.

2 – There will usually always be 2 components in the assessable income:-

- (a) A valuation component reflecting the “reward” for service (ordinary income component) at the date of the grant of the participation and
- (b) A capital gain component reflecting the increase in the value of the asset during the participation in the plan.

3 – The CGT rules must be amended to include the holding period of the option (or right) in the holding period of the asset which is realised (eg – the share). Otherwise the valuation rules will be useless as the whole amount will be assessed without CGT discount relief.

4 – The valuation rules will need to be very flexible to accommodate the wide range of variables that can arise from participation in the plan.

Attached to this submission is a paper by Bill Jansen, an expert in share valuations, regarding valuation methodologies.

Please let me know if you require any further information or input from me.

Yours faithfully,

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DEALING WITH EXECUTIVE OPTIONS
IN FAMILY PROPERTY
DISPUTES

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1. Introduction

- 1.1 In recent years it has become common for senior executives, Directors and employees of organisations to be granted options by way of equity based incentive schemes in their employer organisations. In many instances, such options can be, or can become, very valuable entitlements giving rise to substantial property. This trend of incentivising employees by granting option entitlements is likely to increase in coming years rather than decrease because of the desire to link the performance of employees to shareholder value. However, in times of economic uncertainty or when companies are failing, employees tend to revert back to more secure base salary arrangements. Apart from rewarding employees by way of salary, superannuation and bonuses for personal effort, the longer term incentive to create value for owners is seen as a desirable objective in which employees and shareholders should both participate. In the current competitive environment, businesses are constantly searching for ways to attract, retain and motivate quality employees.

The increased use of share options in determining the remuneration of Directors and senior employees has recently drawn the attention of the Australian Accounting Standards Board (AASB) with the development of proposed standards for reporting executives' and Directors' remuneration in published annual reports. An exposure draft is expected to be released in the near future. At this stage the AASB is proposing that share options be measured at the vesting date, with disclosure from the date of grant, but this is still the subject of debate.

Whilst there is still some discussion as to whether it is mandatory to disclose the value of share options in financial statements, disclosure of both the value and terms of options issued to Directors and officers of a company is strongly encouraged by leading practitioners as being in the interests of best practice in corporate governance.

- 1.2 The vexing questions for family lawyers, valuers and the husband/wife (for the purposes of this paper I include de-facto partners) include:
- Should unvested options be included in the property or income earning pool of the parties or is it merely a financial resource? (I have addressed the Australian and US positions).
 - How should options be valued?
 - Is it just and equitable to compensate one party with cash or other property and leave the other party with an uncertain asset, namely options, in an employer entity, which may or may not provide value to the holder at some time in the future?
 - Should the parties consider a deferred settlement agreement for unexercised options based on an agreed allocation once the options are exercised and/or realised and therefore have a readily determinable value at that future date?
 - To what extent should future contributions of the party entitled to the options be taken into consideration?

- Is a binding financial agreement pursuant to the new Part VIIIA (December 2000) of the Family Law Act 1975 a viable alternative with regard to executive options either before marriage, during marriage or after marriage?
- How should potential taxes be allowed for (if any)?

These questions will be addressed in this paper based on my personal experience in both valuing and advising on the treatment of executive options in recent years in acting as an expert accountant in family property disputes.

2. What is an Option?

2.1 In order to arrive at an opinion as to the treatment and valuation of executive options in family law matters, the practitioners and parties need to have an understanding of the nature of the asset.

2.2 What is an option?

An option is the right, but not the obligation, to buy (a “call option”) an asset at a specified price (the “exercise” or “strike price”) on, or before, a specified date. Alternatively it is the right, but not the obligation, to sell (a “put option”) an asset at a specified price (the “exercise” or “strike price”) on, or before, a specified date.

All traded options and employee options are “call” options.

Options can be either American or European. This has nothing to do with geographical location. American options can be exercised at any time up to the expiration date, whereas European options can only be exercised on the expiration date itself. Most of the options that are either traded on exchanges or are granted as executive remuneration are American. However, European options are generally easier to analyse than American call options.

2.3 Factors affecting the value of an option

The factors affecting the value of an option are:

- the underlying value of the asset;
- the strike price;
- the time to expiration;
- the volatility of the underlying asset;
- the risk-free rate; and
- the dividends expected during the life of the option (if any).

The most important factor influencing the value of an option is the underlying value of the asset to be purchased. A call option is said to be “in the money” when the asset value is above the exercise price of the option and “out of the money” when the asset value is less than the exercise price. An option is “at the money” when the asset value equals the

exercise price of the option. The difference between the exercise price of the option and the value of the asset is called the "intrinsic value of the option."

The time value of the option decreases as the option nears expiry. This is due to the fact that the option is deemed to have a greater potential of becoming "in the money" with a longer time frame to expiry.

As the volatility of the underlying stock increases the value of a call option increases as the chance of the stock doing very well increases. In addition, if the underlying share price exceeds the exercise price before the exercise date the value of a call option increases.

The value of a call option generally increases as the risk free rate increases. As interest rates in the economy increase, the expected growth rate of the stock price tends to increase.

Dividends have the effect of decreasing the stock price on the ex-dividend date. Therefore, the value of call options tend to be negatively related to the size of any anticipated dividends.

Generally speaking, the price at which the options can be exercised (the strike price) is set so that there is little intrinsic value in the option itself when it is issued. For example, an option granted for \$1.00 may be equal to the closing market price of the underlying share on the day prior to the issue date. The value of the option therefore lies in the opportunity to take advantage of increases in the share price of the underlying share over the period until expiry.

2.4 A Typical Example

Husband High Flyer was granted three tranches of restricted stock options in Rapid Growth Ltd on the following dates:

Grant date	No. options	Exercise / (strike) price
31 October 1999	1,000	\$1.00
31 October 2000	2,000	\$1.20
31 October 2001	3,000	\$1.40

Each option is equivalent to one share on the vesting date. A review of the employment agreement and the detailed Employee Compensation Plan document indicates the following restrictions, features and conditions:

- The options are not exercisable ie do not vest until one year after the date of the grant and thereafter on a sliding scale:
 - 20% in year 2
 - 30% in year 3
 - 50% in year 4
- If employment is terminated for any reason other than death, the available options expire on the date of termination. However, the Board of Directors may use its discretion and allow the options to be exercised from the date of termination up to 1 year after this date (although not if the options have expired during this time);
- The options are not transferable except upon death. However, the Board of Directors, in its discretion, may allow the options to be transferred to immediate family members, trusts or partnerships for the benefit of the immediate family members;
- If High Flyer wants to sell his options (assuming he is entitled to) he must give three months notice in writing. The trading price of these options is the fair market value on the date the options are to be exercised. The fair market value is the average of the highest and lowest share price on the day of exercise;
- Upon a change in control of Rapid Growth Ltd, High Flyer will be paid the value of outstanding options as a lump sum within 30 days;
- The exercise price of the options are fixed as at the date when the options are granted;
- In the event of any changes in capitalisation of Rapid Growth Ltd an appropriate adjustment will be made in the price of each option and right and the number of shares subject to each option and right; and
- Upon the death of High Flyer, all options (whether or not previously exercisable) must be exercised by the trustee of the Estate within 12 months from the date of death.

Hence if we are assessing the value of High Flyer's options for a family property dispute in December 2001, the picture may look something like this:

<u>As at December 2001</u>	<u>Property*</u>	<u>Financial Resource*</u>
200 shares in Rapid Growth Ltd (being 200 Oct 99 or 20% of options exercised)	200 shares	
300 options in Rapid Growth Ltd (being 300 Oct 99 options or 30% exercisable but not yet exercised)	300 options	
500 options in Rapid Growth Ltd (being 500 Oct 99 options or 50% not yet exercisable)	-	500 options
400 options in Rapid Growth Ltd (being 400 Oct 2000 options or 20% exercised)	400 shares	
1,600 options in Rapid Growth Ltd (being 1,600 Oct 2000 options 80% unexercisable)	-	1,600 options
3,000 options in Rapid Growth Ltd (being 3,000 Oct 2001 options 100% unexercisable)	-	3,000 options

* The issue as to whether the tranche is property or a financial resource is addressed in Section 3 of this paper.

2.5 *Grant Date*

The grant date usually refers to the date on which the terms of the options are agreed between the employer and employee. Typically, the options granted on the grant date will not vest immediately and the employee will become entitled to the options over a period of years.

2.6 *Vesting Date*

The vesting date refers to the date on which the employee becomes entitled to the beneficial interest in the option. Prior to this, the employee may have, under an executory contract a contingent right that will lapse or be forfeited if certain stated conditions are not satisfied.

At the vesting date, the rights of the employee are no longer contingent and the entity has received the benefits stated in the award in terms of the service or performance criteria.

Subsequent to the vesting date, an employee may still be subject to restrictions on the transfer of the options to third parties but would only lapse or be forfeited in circumstances unrelated to performance criteria or service by the employee.

Where restrictions are based on time, and not on future services to be provided by the employee, it would be considered that the beneficial interest had passed to the employee. Where restrictions on transfer or exercise are related to termination or continuation of

employment, the circumstances need to be considered to determine the point at which the employee becomes substantively or equitably entitled to the beneficial interest.

2.7 *Exercise Date*

The exercise date refers to the date on which the property the subject of the option is taken up by the grantee.

3. **Property or Financial Resource or a Distinct Category?**

3.1 The Family Law Act (1975) contains the relevant legislation relating to property, spousal maintenance, binding financial agreements and maintenance agreements generally. The Court shall take into account a number of factors in considering what orders (if any) should be made with respect to any property of the parties to a marriage. These factors include inter alia -

- *“The income, property and financial resources of each of the parties”.*

In order to determine the financial entitlements of a party, the Court has to identify and value the property of the parties with the relevant date for valuation being the date of the final hearing.

“Property” in Section 4 of the Act *“ in relation to the parties to a marriage or either of them, means property to which those parties are, or that party is, as the case may be, entitled, whether in possession or reversion”*

“Financial Resources” are not defined in the Act but are akin to future benefits that are contingent upon certain events happening such as with annual and long service leave, retirement from employment coupled with a specified length of service with an employer. Until recently superannuation [until the amendment passed on 18 June 2001 of the Family Law Legislation Amendment (Superannuation) Bill 2001] was (with few exceptions) considered a financial resource rather than property and gave rise to complex issues where the sums involved were material. Following the legislation, superannuation will be treated as property from the end of December 2002.

The Court’s power is limited to making orders in relation to the property of the parties or either of them (Section 79). It can therefore be very difficult to arrive at a just and equitable decision where one of the parties’ major asset comprises unexercised options, which are classified as a financial resource rather than property, and where there is otherwise a very small pool of net property. In such cases a deferred settlement or even future maintenance orders may need to be considered as an alternative to immediate property division.

Options however are not specifically covered in the Act. I am not aware of case law covering executive options. Based on the nature of the asset and the restrictions generally imposed on the option holder, they are more akin to a future financial resource than property with which the Court can deal at the time of the Hearing.

Exceptions to executive options being classified as financial resources may include:

- a) Where the options are free to be exercised (ie have vested) at the time of the hearing and they are “in the money” i.e. they have a net realisable value after the payment of:
 - subscription or exercise costs
 - brokerage
 - taxation

- b) Where the options have already been exercised but not yet converted into shares or rights over shares (due to restrictions) in which case they would clearly be considered property even though there may be restrictions on the transfer of the securities.

The above example of High Flyer considers these issues.

Reasons that can be put forward for considering options as a financial resource (assuming they cannot be exercised at the Hearing date) include:

- Restrictions placed upon them by the Employee Compensation Plan;
- Their value is contingent upon the underlying share price exceeding the exercise or strike price at some future date and prior to expiry of the options;
- Continuation of employment of the employee and specific employee performance hurdles built into the plan;
- Restrictions (if any) on the transfer of the options;
- Restrictions (if any) placed on the sale of the underlying shares once the option is exercised;
- The fortunes of the company over which the options are held as well as company performance hurdles built into the plan;
- No dividends are generally payable until after the options are exercised;
- During the option period they can be “in the money”, “at the money” or “out of the money” at various dates into the future; and
- The income tax and capital gains tax liability on the realisation of the options/shares can vary depending upon the legislation in place at the time, the taxable income of the holder, the type of tax election made by the holder and whether the resulting shares are held for a further 12 month period after exercise.

Where the value of options are substantially tied to industry performance and the future performance of both the employee and the company he works for, perhaps the asset class should be treated as a separate or distinct category in the asset pool of the parties.

In conclusion, a careful analysis of the employee share/option plan is necessary as well as a classification of each tranche of options will be required in order to conclude whether they constitute property or a financial resource or a distinct category of assets of the parties.

3.2 Experience in the United States

In the United States the Courts diverge widely in the manner in which they divide stock options, and whether or not they consider options to be part of the marital estate. In addition, exactly how the options are divided is not readily ascertainable, with some courts not dividing this asset upon dissolution and retaining jurisdiction to split the proceeds when, and if, the options are exercised at a profit.

A number of factors are considered in determining whether the options may be classified as property or as a financial resource. These include whether:

- i) the options were granted before the marriage, during the marriage, pre-separation, after separation or after the date of the divorce;
- ii) the options vested during the marriage, after separation or after the date of the divorce;
- iii) the options contract established any specific limitations;
- iv) the employer granted the options to the employee for work performed in the past or for work to be performed in the future, or as payment for both past and future services.

In the United States, generally the method of distributing stock options falls into two categories:

1. Deferred Distribution upon exercise of options (Constructive Trust)
2. Present Valuation with offset against other assets

3.3 Deferred Distribution Method

Under this method the stock options acquired by the husband or wife, during the course of the marriage are subject to equitable distribution notwithstanding the fact that the option would terminate if the option holder left the company

3.4 Present Valuation Method

Under this method, the stock options are valued with the non-employed spouse receiving a share of the marital portion in cash or cash equivalent. Such a method should use discounts for mortality, interest, inflation and any applicable taxes. The downside of this method is that it may become inequitable in the event that the employee spouse is either unable to exercise the option or, on the date they become exercisable, they are "out of the money".

Either method as adopted in the US might reasonably be adopted in Australia in dealing with stock options.

4. Valuation Methodology

- 4.1 The valuation of share options requires a thorough understanding of the appropriate quantitative techniques, to apply in respect of the type of option issued.

The quantitative factors that affect the value of an option were previously detailed in Section 2.3 above.

4.2 Alternative Valuation Methodologies

There are several commonly used option valuation methodologies. These are discussed below.

4.3 *Fundamental or Intrinsic Value*

The fundamental value of an option is the difference between the share value and the option exercise price, giving consideration to the option holder having the use of the funds required to exercise the option less the present value of the foregone dividends on the underlying shares.

This method does not consider the value to the holder of having the right to buy the stock at some point in the future at a predetermined price. It also does not consider the volatility of the underlying share as well as the incumbent advantages and disadvantages of the same. In addition, it does not consider the advantages and disadvantages of the option holder not receiving the shares or dividends as well as the opportunity cost of purchasing the share and foregoing interest on the acquisition funds.

Accordingly, this valuation method is rarely used in practice.

4.4 *Black-Scholes Option Pricing Model*

The Black-Scholes formula is often used for assessing the value of a call option and considers volatility in its calculation.

The assumptions generally underlying the Black-Scholes formula are as follows:

- no dividends are paid during the life of the option;
- the option can only be exercised on the expiration date (the option is a European option);
- there are no taxes or transaction costs and no margin requirements;
- the volatility of the underlying asset is constant and is defined as the standard deviation of the stock price movement; and
- short selling is permitted.

This is the principal model used to value European options which can only be exercised on the expiration date and no dividends are expected to be paid on the underlying stock.

4.5 *Binomial Option Pricing Model*

This is the principal model used to value American options.

The binomial option methodology utilises probability theory to calculate the value of the option based on the value of the underlying share on the expiration date. The assumptions underlying the binomial option theory are as follows:

- no transaction costs and taxes;
- the risk free rate is constant over time;
- asset trades are continuous over time;
- assets can be short sold;
- investors can borrow or invest any fraction of the price of the asset;
- dividends (if any) expected to be paid during the life of the option;
- the value of the option cannot fall below zero; and
- the option can be exercised at any time prior to expiration.

This theory utilises binomial distribution which means that the price of an asset will be one of two alternatives, that is, a share with a price of \$1 and a 50% chance of moving downwards or upwards by 10% will have a price of either \$0.90 or \$1.10. This option pricing model values the option at the present value of the final payout multiplied by the probability of the outcome.

The main difference between the Black-Scholes model and the Binomial model arises from the binomial model fully reflecting the benefit of being able to exercise an option on a dividend paying stock before its expiration date, when it is economic to do so.

An adaptation of the above methodologies that is particularly suitable for the valuation of executive options generally encountered in Australia, is the Binomial American Option Pricing Model for Executive Option Valuations provided by Bloomberg Pty Ltd.

The valuer is required to determine a number of key assumptions and facts into the model including the:

- risk free rate (in Australia, this can be estimated by using the Government bond rate for a period comparable to the expiration of the option);
- strike or exercise price at date of issue or grant;
- expiry date of the options;
- vesting date of the options; and
- volatility of the underlying stock or share (this should be determined by reference to a reasonable period at least comparable to the period of the option).

Attached as various annexures are examples of the above for IBM (US).

Annexure "A" = share price over a four year period from 1 February 1997 to 30 June 2000

Annexure "B" = share price volatility over four different periods viz 10 days, 100 days, 200 days and 365 days

Annexure "C" = Executive Option Valuations as at 6 July 2000 under 2 model types (USD) being Default and Binomial.

Apart from the judgement the valuer must exercise when running the quantitative model, he or she has to also consider what other matters will influence the final value for Family Law purposes such as:

- a) exchange rates (where the underlying shares are in foreign currency);
- b) brokerage selling costs;
- c) discounts to be applied for the disadvantages attached to the options such as the number of years before they can be exercised, the risk of the holder ceasing to be employed, restrictions on transfer and marketability, industry and economic risk;
- d) whether other expert evidence is required from industry specialists, such as a remuneration expert or industry specific expert, where performance hurdles need to be met in order for the options to be exercisable; and
- e) taxation implications.

A typical summary valuation table could look like this:

Grant number	Effective vesting date	Number of options	Strike price (US\$)	Share price (US\$)	Option price (US\$)	Gross option value (US\$)	Exchange rate	Conversion A\$	Value after 1% brokerage	Discounts for restrictions	Discounted value (A\$)
Unvested options											
RP000361	22-Nov-00	187	10.00	93.94	89.18	16,677	1.64	27,316	27,043	5.0%	25,691
RP000362	19-May-01	1,558	10.00	93.94	89.45	139,363	1.59	221,563	219,347	10.0%	197,413
00005704	12-Oct-00	251	30.75	93.94	85.96	21,576	1.64	35,341	34,988	4.0%	33,589
00005704	12-Oct-01	750	30.75	93.94	85.96	64,470	1.59	102,496	101,471	10.0%	91,324
00005704	12-Oct-02	750	30.75	93.94	85.96	64,470	1.59	102,659	101,633	20.0%	81,306
00005704	12-Oct-03	750	30.75	93.94	85.96	64,470	1.55	99,783	98,785	30.0%	69,150
Total		4,246				371,026		589,159	583,268		498,472

5. Taxation Implications

5.1 As the above value is calculated before allowing for taxation a further calculation is required assuming the holder is on the top marginal rate of tax as follows:

Number of options	Strike price (US\$)	Value of options @ Strike price (US\$)	Exchange rate	Value of options @ Strike price (A\$)	Discounted value of options (A\$)	Profit on notional sale of options (A\$)	Discounted profit @ 5.92% (A\$) (Time value)
				[A]	[B]	[C] – [B] – [A]	[C] x (1/1.0592) ⁿ
187	10.00	1,870	1.64	3,063	25,691	22,628	22,113
1,558	10.00	15,580	1.59	24,769	197,413	172,643	162,994
251	30.75	7,718	1.64	12,643	33,589	20,946	20,470
750	30.75	23,063	1.59	36,665	91,324	54,659	50,633
750	30.75	23,063	1.59	36,724	81,306	44,582	38,991
750	30.75	23,063	1.55	35,695	69,150	33,455	27,624
Total		94,356		\$149,559	\$498,472	\$348,913	\$322,825
				Tax	48.5%		\$156,570
				Net Resource			\$166,255

5.2 As the value to be determined is the net realisable value in cash it is my view that tax ought to be allowed for as a cost. When determining the tax liability on options it is necessary for the holder to make an election as to the timing of tax payable. In Australia, the majority of option holders elect to pay the tax on the exercise of the option. Assuming the holder earns other income of at least \$60,000 pa a marginal rate of tax of 48.5% needs to be applied to the profit component. This assumes that the holder is not prepared to pay the exercise price, and then hold the underlying shares for a period of at least one year to gain the 50% capital gains tax reduction.

To calculate the tax liability the profit on the notional sale has to be determined, being the discounted value of the options as calculated above less the strike price of the options and selling costs. This profit needs to be discounted to net present value to allow for the time value of money i.e. a dollar today is worth more than a dollar in four years time. The Treasury bond rate for the period to realisation would seem an appropriate rate.

Hence the final assessed value may be expressed as follows:

	\$A
Pre-discounted gross value of options before tax	589,159
Less brokerage on sale @ 1%	<u>5,891</u>
	583,268
Less valuer's discounts for restrictions (para (c) above	<u>84,796</u>
	498,472
Less Cost of exercise of the Options (strike price)	<u>149,559</u>
	348,913
Less discount for time value of money and tax	<u>182,658</u>
Net Financial Resource	<u>166,255</u>

6. Conclusion

- 6.1 The analysis undertaken in this paper should demonstrate the need for the Family Lawyer to engage an expert valuer familiar with options valuations and theory where a client identifies options held as a potential asset.

A segregation of the options into property, financial resource or separate class of asset will be necessary in order to properly advise the client. Whether to compensate the party without the options by way of cash or other property or to consider a deferred settlement with respect to the options will need consideration. This may include a binding financial agreement which recognises that a substantial benefit should flow to the option holder where the future value is linked to that person's personal performance and not just that of the employer and industry in which it operates.

Bill Jansen
January 2002

References

1. "Understanding Options Trading" ASX Derivatives Division Explanatory Booklet.
2. "Stock Options in Divorce: assets or income?" Family Law by Michael J Mard and Jorge M Cestero, The Florida Bar Journal, May 2000.
3. "Valuation of Stock Options in Dividing Marital Property Upon Dissolution" by Lynn Curtis Journal of the American Academy of Matrimonial Lawyers Vol 15, 1998.
4. "Divorce – The Valuation and Division of Stock Options" by Sanford K Ain of Sherman, Meehan, Curtin & Ain, P.C. December 2001.
5. "Valuing Unvested Stock Options as a Marital Asset in an Equitable Distribution Dissolution: Insights" from *Wendt v Wendt* by Lynn Korlet Law & Valuation, Professor Palmiter Spring 1999.
6. "Employee Stock Options and Divorce" by Charles F Vuotto, Jr, Family Law Advisor December 2001.

7. Bloomberg Financial Markets – Binomial Executive Option Valuation Model.
8. “The Valuation of Businesses, Shares and other Equity” by Wayne Lonergan, Third Edition, Business and Professional Publishing. The valuation of Derivatives Part II.

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Equity GP

Trade Line IBM US Equity Page 1/4

Range 2/1/97 - 6/30/00

Period D Daily

Base Currency: USD

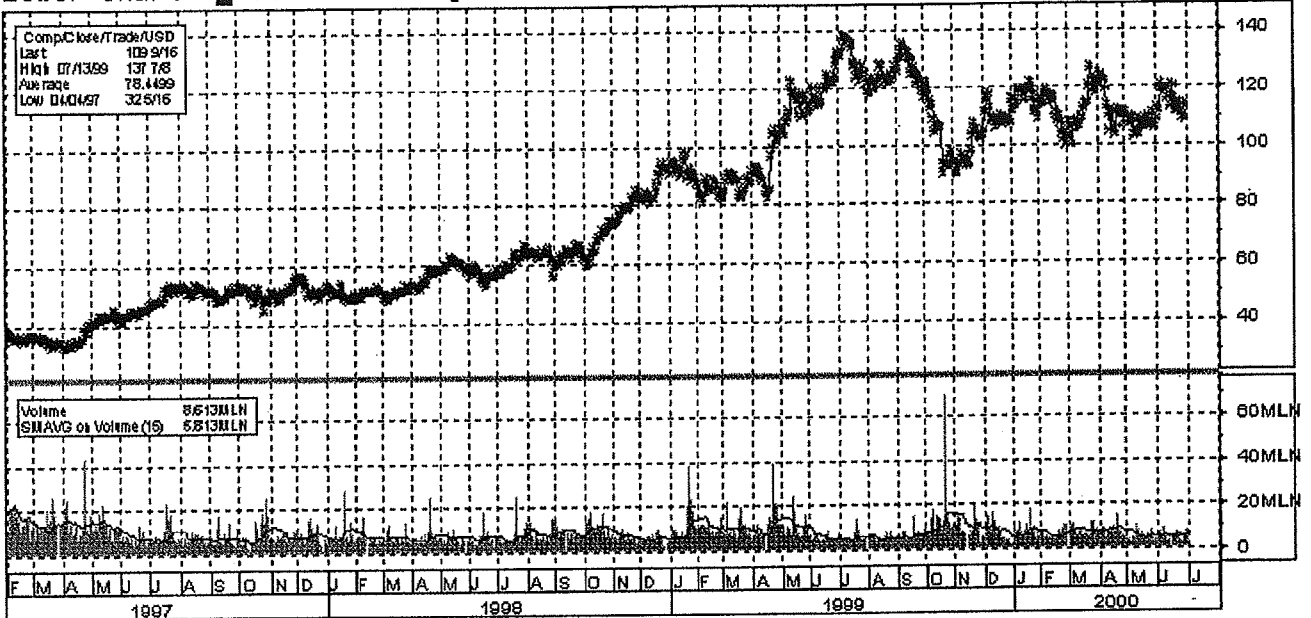
Upper Chart: 3 Trade Line

Moving Averages

Lower Chart: V Volume Histogram

Moving Average 15

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Equity GP

Trade Line IBM US Equity Page 1/4

Range 2/1/97 - 6/30/00

Period D Daily

Base Currency: USD

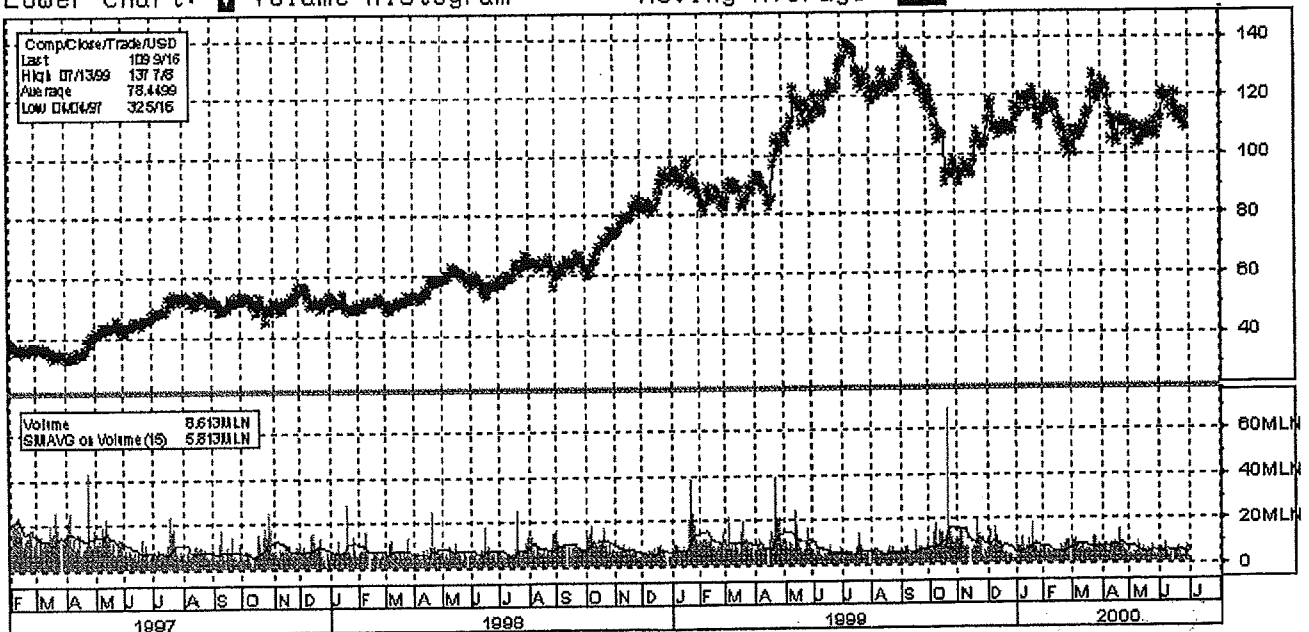
Upper Chart: 3 Trade Line

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P177 Equity HVT

HISTORICAL PRICE VOLATILITY

INTL BUSINESS MACHINES C (IBM US)

PRICE 114

T

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DELAYED

Period: **D** Daily

Currency: **USD**

N-DAY VOLATILITY

OPTIONS

of Historical Closing Prices

Implied Volatility

Prices	N = 10 day	100	200	365	CALLS	PUTS
6/29/00 114	54.741	45.830	46.582	43.894	37.989%	38.181%
6/28/00 113 ³ / ₈	57.304	46.324	46.609	43.906	36.923	37.365
6/27/00 109 ³ / ₄	52.828	45.992	46.430	43.812	39.882	38.561
6/26/00 114 ³ / ₈	50.344	45.545	46.204	43.788	40.419	34.814
6/23/00 111 ⁷ / ₈	48.053	45.688	46.177	43.792	39.133	38.785
6/22/00 111 ¹ / ₈	47.853	45.971	46.178	43.853	37.984	39.308
6/21/00 114 ¹ / ₂	46.918	45.926	46.239	43.805	37.790	36.916
6/20/00 116 ³ / ₈	46.566	45.857	46.216	43.824	37.977	36.346
6/19/00 120 ³ / ₈	58.809	45.606	46.143	43.733	33.043	37.889
6/16/00 113 ¹ / ₄	49.232	44.756	45.685	43.451	39.237	36.838
6/15/00 116 ¹ / ₂	48.522	44.593	45.567	43.373	40.629	37.524
6/14/00 116	49.494	44.690	45.627	43.372	39.531	39.105

260 Annualization factor

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P177 Equity OV

Executive Option Valuation				Page 1 of 2	
IBM	US	INTL BUSINESS MACHINES CO	Currency: USD		
Price of IBM US Equity 111.1%				Hit 1 GO for save/send screen Hit 2 GO for notes Hit 3 GO for dividends Hit MENU for exotic option types Hit PAGE for scenario graph	
Strike:	124.256	111.757% (USD)	Rate:	6.009%	Semiannual
Exercise Type:	<input checked="" type="radio"/> American				
Put or Call:	<input checked="" type="radio"/> Call				
Dilutive?:	<input checked="" type="checkbox"/> Dilutive				
Shares Outstanding:	1772.837M	Issue Amount:	10.0K		
Days to Expiration:	3375	Model Type:	<input checked="" type="radio"/> Default		
Trade Date:	6/30/00				
First Exercise:	9/27/00				
Expiration Date:	9/27/09				
Settlement Date:	6/30/00				
Exercise Delay:	0				
Option Valuation and Risk Parameters				Dividends	
Price:	Value 60.77969	Percent 54.726%	Time Value:	60.77969	Dividend Yield
Volatility:	40.000%	Theta:	0.00984	Ex-Date	Amount
Delta:	0.79954	Premium:	66.4	8/ 7/00	.120USD
Gamma:	0.00184	Parity:	-13.05750	11/ 8/00	.120USD
Vega:	0.84227	Gearing:	1.82730	2/ 8/01	.120USD
				Ex 11/08/07	Amt 3.670USD Num 30

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P177 Equity OV

Executive Option Valuation				Page 1 of 2	
IBM	US	INTL BUSINESS MACHINES CO	Currency: USD		
Price of IBM US Equity 111.1%				Hit 1 GO for save/send screen Hit 2 GO for notes Hit 3 GO for dividends Hit MENU for exotic option types Hit PAGE for scenario graph	
Strike:	124.256	111.757% (USD)	Rate:	6.009%	Semiannual
Exercise Type:	<input checked="" type="radio"/> American				
Put or Call:	<input checked="" type="radio"/> Call				
Dilutive?:	<input checked="" type="checkbox"/> Dilutive				
Shares Outstanding:	1772.837M	Issue Amount:	10.0K		
Days to Expiration:	3375	Model Type:	<input checked="" type="radio"/> Binomial		
Trade Date:	6/30/00				
First Exercise:	9/27/00				
Expiration Date:	9/27/09				
Settlement Date:	6/30/00				
Exercise Delay:	0				
Option Valuation and Risk Parameters				Dividends	
Price:	Value 60.77971	Percent 54.726%	Time Value:	60.77971	Dividend Yield
Volatility:	40.000%	Theta:	0.00984	Ex-Date	Amount
Delta:	0.79954	Premium:	66.4	8/ 7/00	.120USD
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Vega:	0.84227	Gearing:	1.82730	2/ 8/01	.120USD
				Ex 11/08/07	Amt 3.670USD Num 30

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