

# The lessons of the 1987 sharemarket crash

Global markets are volatile and no one is quite sure what will happen next. The one thing everyone agrees on is that the current boom is over. The situation is not dissimilar to what happened when the stockmarket crashed in 1987. **PENNY BLACK-TIONG** takes a look at the past to determine the future.

**T**he October 1987 stockmarket crash had a profound effect on the Australian sharemarket and the economy in the following seven years. The top 100 companies outperformed the rest of the market while many smaller companies were delisted during this period and unemployment rose. However, after the trough of the recession, the rest of the market outperformed the top 100.

The divergence between the performance of the top 100 and the rest of the market during the recession seems to have been exacerbated by the sharemarket crash. These observations are contrary to the CAPM. The multifactor model outlined in this article indicates that the unemployment rate, in addition to the market factor, is significantly related to the monthly portfolio returns of Australian size-based share portfolios in this 1985-1994 period.

## Background

The world economy was strong in 1987 when on 19 October the Dow fell by 22.6%.

In Australia, there was a significant rise in company liquidations and a prolonged period of high unemployment following the crash.

Monetary policy was tightened with short term interest rates peaking at approximately 18% in 1989. However, the wider interest rate differential between Australia and other countries also led to an appreciation of the AUD.

The decline in output growth reached a trough in late 1991 with three quarters of negative growth in seasonally adjusted GDP and a slump in seasonally adjusted company profits. The unemployment

rate reached a peak of approximately 11% in 1992 and 1993.

## Method

The multifactor model described in this article is based on the Capital Asset Pricing Model (CAPM). The CAPM proposes that the expected return of a share or portfolio is linearly and positively related to its risk relative to the market, measured by variations in the returns of the market portfolio.

Therefore the expected return of a share, or portfolio, is explained by a single market factor, or beta coefficient. If the beta coefficient is equal to one, the portfolio's expected return will be equal to that of the market.

The two portfolios used in this study were formed by ranking all companies listed on the ASX in January each year and dividing them into the top decile, with Portfolio One containing about 100 of the ASX's largest listed companies and, Portfolio Two containing the remaining smaller companies.

Portfolios were formed from January to January each year and companies were only relocated to another portfolio if their ranking in terms of market value warranted this. Monthly returns were then derived from an accumulation index of each portfolio. These indices were calculated using the market value-weighted harmonic mean of price relatives.

Therefore, investing in Portfolio One would be equivalent to buying a market value-weighted portfolio of the top ten per cent (by number) of Australian listed companies in January of a particular year and holding these shares until the composition of the portfolios is readjusted in January the next year.

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### Results

The residuals of the single market factor model of the two portfolios for the period 1985-1994 were non-linear. The SPSS output of the multifactor model for Portfolios One and Two, which includes the unemployment rate in addition to the market factor, are included in Tables 1 and 2. This multifactor model also includes a seasonal dummy for November 1987.

The positive intercept, together with the negative coefficient of the unemployment rate, captures the non-linear trend in the return of Portfolio One adjusted for market risk. That is, when the unemployment rate is low, immediately after the Crash, Portfolio One provided positive risk-adjusted returns. However, these risk-adjusted returns became negative when the unemployment rate was high, up to 11%. The positive significant seasonal dummy for November 1987 indicates that the returns of Portfolio One moved significantly higher relative to the rest of the market.

Portfolio Two experienced a severe slump in market value after the October 1987 Crash and negative, risk-adjusted returns. However, this portfolio provided positive, risk-adjusted returns as the recession ensued and unemployment rose. The negative, significant dummy indicates the extent of the further slump in the returns of this portfolio relative to the top portfolio in November 1987.

The multifactor models were revised to test the significance of the relationship between the portfolio returns and the level of interest rates. A multifactor model for each portfolio was analysed which included a market factor and a long-term bond rate, instead of the unemployment rate. The unemployment rate and the long-term bond rate were significantly negatively correlated during this period ( $r = -0.798$ ).

That is, interest rates were increased when unemployment was low in order to reduce asset prices and aggregate demand.

The coefficients of the intercept and the long-term bond rate were

of the opposite sign to the previous multifactor models in Tables 1 and 2, as expected.

### Discussion

These results indicate that the single factor CAPM does not explain the returns of these size-based portfolios in this period. This raises the question as to why Portfolio One behaved so differently to the rest of the market in response to October 1987 and the 1990s recession?

The portfolios were similar in that approximately 70% of the market value of both portfolios at this time were industrial stocks, the remainder being resource and mining stocks. However, while both portfolios collapsed together in October 1987, their behaviour then diverged markedly.

Portfolio One recovered immediately whereas Portfolio Two collapsed further. This difference in investors' reactions is captured in the November 1987 seasonal dummy, which is positive for Portfolio

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**TABLE 1 RESULTS OF THE OLS REGRESSION OF PORTFOLIO ONE AGAINST THE MARKET PORTFOLIO, INCLUDING THE UNEMPLOYMENT RATE AND SEASONAL DUMMY; 1985 - 1994**

<b>Model Summary<sup>b</sup></b>						
Model	R	R Square	Adjusted R Square	Std. Error of the Estimate		
1	.996 <sup>a</sup>	.993	.993	.5151		
<sup>a</sup> Predictors: (constant), ur-est, D1187, XSACCR						
<sup>b</sup> Dependent Variable: XSYG1R						
<b>ANOVA<sup>b</sup></b>						
Model		Sum of Squares	df	Mean Square	F	Sig.
1	Regression	4211.914	3	1403.971	5292.245	.000 <sup>a</sup>
	Residual	30.773	116	.265		
	Total	4242.688	119			
<sup>a</sup> Predictors (Constant), ur-est, D1187, XSACCR						
<sup>b</sup> Dependent Variable: XSYG1R						
<b>Coefficients<sup>a</sup></b>						
<b>Unstandardized Coefficients</b>						
	B	Std. Error	t	Sig.		
Intercept	.997	.253	3.950	.000		
Market	1.041	.008	125.314	.000		
Dummy Nov 87	2.922	.519	5.635	.000		
Unemployment Rate	-.108	.029	-3.722	.000		
<sup>a</sup> Dependent Variable: XSYG1R						

**TABLE 2 RESULTS OF THE OLS REGRESSION OF PORTFOLIO TWO AGAINST THE MARKET PORTFOLIO, INCLUDING THE UNEMPLOYMENT RATE AND SEASONAL DUMMY; 1985 - 1994**

<b>Model Summary<sup>b</sup></b>						
Model	R	R Square	Adjusted R Square	Std. Error of the Estimate		
1	.923 <sup>a</sup>	.852	.848	2.1320		
<sup>a</sup> Predictors: (Constant), ur-est, D1187, XSACCR						
<sup>b</sup> Dependent Variable: XSYG2R						
<b>ANOVA<sup>b</sup></b>						
Model		Sum of Squares	df	Mean Square	F	Sig.
1	Regression	3030.750	3	1010.250	222.248	.000 <sup>a</sup>
	Residual	527.289	116	4.546		
	Total	3558.039	119			
<sup>a</sup> Predictors (Constant), ur-est, D1187, XSACCR						
<sup>b</sup> Dependent Variable: XSYG2R						
<b>Coefficients<sup>a</sup></b>						
<b>Unstandardized Coefficients</b>						
	B	Std. Error	t	Sig.		
Intercept	-5.604	1.045	-5.362	.000		
Market	.829	.034	24.091	.000		
Dummy Nov 87	-7.473	2.146	-3.482	.001		
Unemployment Rate	.618	.120	5.162	.000		
<sup>a</sup> Dependent Variable: XSYG2R						

One and negative for Portfolio Two.

A large part of the market value of the Australian sharemarket is invested in the top portfolio of companies. This characteristic became more marked as Portfolio One rose from 76% of the market portfolio prior to the sharemarket crash, to over 92% in September 1990 due to the divergence between the performance of the top portfolio and the rest of the market in this period—illustrated in Figure 1.

The so-called 'flight to quality' resulted in the apparent recovery of Portfolio One and the Australian market portfolio. The rest of the market, Portfolio Two, entered a prolonged slump until its relatively stronger recovery in late 1992.

However, after the Crash, Portfolio One did appear to be under some financial stress as the percentage of companies which did not pay dividends rose to a peak of 20% in 1988. This stress was even greater in Portfolio Two, where companies which did not pay dividends rose from 50% in 1986 to approximately 70% in the years 1988 to 1992. This behaviour was mainly driven by industrial companies in both portfolios.

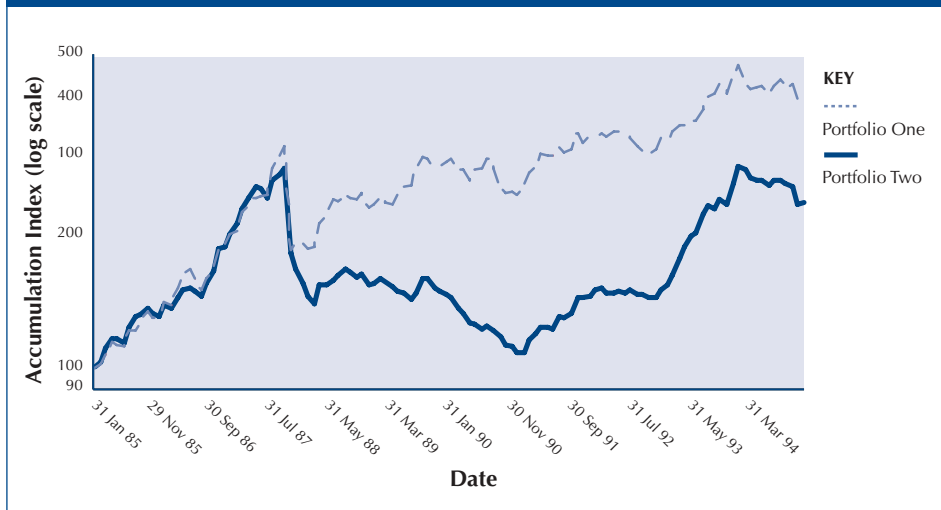
The recovery in world demand, induced by the liquidity injection following the Crash, eventually led to tighter monetary policy in Australia, amidst concern about inflationary pressure, resurgent asset prices and the current account deficit. In the short term tight monetary policy leads to higher interest rates, a lower demand for money and lower asset prices.

In the longer term there is a decline in the supply of new securities until portfolios are once again in balance with a higher proportion of money and a lower proportion of securities, *ceteris paribus*.

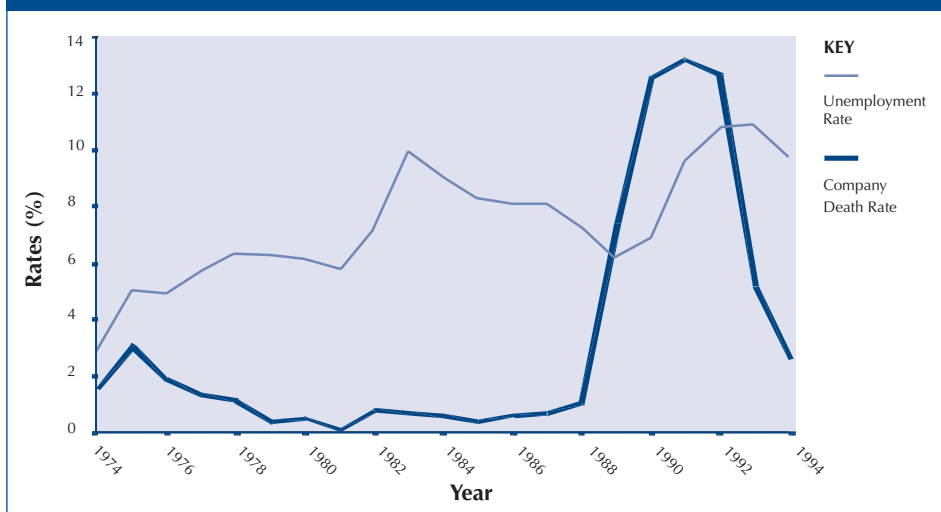
Tight monetary policy did not lead to a decline in asset prices in Portfolio One due to these companies having a relatively greater capacity for internal financing. The dividend yield of Portfolio One rose to a 20 year high of nearly 7% in 1990 and then fell to approximately 4% for the rest of the period. Additionally, the demand for the securities in this portfolio remained strong.

These factors led to Portfolio One outperforming the rest of the market

**FIGURE 1 ACCUMULATION INDICES FOR PORTFOLIOS ONE AND TWO  
BASE JAN 1985=100**



**FIGURE 2 UNEMPLOYMENT RATES AND COMPANY DEATH RATES, AUSTRALIA  
1974-1994**



early in the recession. However, Portfolio One experienced negative risk-adjusted returns in the trough of the recession when profits had slumped and major banks, in particular, had negative net profits. At this time unemployment was high and bond rates were low.

Additionally, the dividend yield of Portfolio Two was at 20-year lows of around 2% for the entire period although it rose slightly in 1990 and 1994.

There was a decrease in demand for securities in Portfolio Two after the Crash as evidenced by their slump in market value, and their recovery as a result of the initial liquidity injection by central banks was minimal. The subsequent world-wide tightening of monetary policy only led to a further

slump in asset values and the returns of this portfolio. This led Portfolio Two to perform relatively worse earlier in the recession than Portfolio One.

Tight monetary policy led to a decline in the rate of new listings and an increase in the rate of delistings, as the company death rate rose. Portfolio Two contained relatively more newly listed companies as a result of economic growth in the 1980s and all but a few of the delistings were companies in Portfolio Two.

Smaller companies were more vulnerable after the Crash because of their reliance on external financing, the high level of interest rates, the slowing economic growth rate and the increasing choosiness of lenders.

The increase in the company failures was followed by an increasing

unemployment rate as illustrated in Figure 2 (Black-Tiong, 2000).

It appears that the conditions prevailing for smaller companies increased the severity of the 1990s recession in terms of company failures and the prolonged, high unemployment rate.

**Conclusion**

The returns of the top decile of the Australian sharemarket and the rest of the market diverged in response to the October 1987 Crash and the monetary policy-induced recession which followed. Portfolio One performed well after the initial crash and early in the recession.

Its returns seem to be affected mainly in the trough of the recession in response to a profit slump. The returns of the rest of the market performed badly after the Crash and early in the recession. However Portfolio Two recovered rapidly after the trough of the recession when bonds rates were low.

The combination of the October collapse of market values and tight monetary policy was particularly detrimental to Australia's smaller listed companies.

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**Bibliography**

- Black-Tiong, P.A., 2000, unpublished thesis.
- Greenspan, A., Speech at the annual dinner and Francis Boyer lecture of the American Enterprise Institute for Public Policy Research, Washington, D.C. December 5, 1996.
- Jonson, P., 1997, The Reserve Bank of Australia, in The Australian financial system, Lewis and Wallace (eds), Longman, Melbourne.
- Leijonhufvud, A., 1968, On Keynesian Economics and the Economics of Keynes, Oxford University Press, New York.
- Moore, B., 1968, An introduction to the theory of finance, The Free Press, New York.

RBA, Bulletin statistical tables, [Internet] Available from: [www.rba.gov.au/Statistics/Bulletin](http://www.rba.gov.au/Statistics/Bulletin). (Accessed March 2002.)