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Stock Market Response to Unexpected Macroeconomic News:
The Australian Evidence

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Abstract

This paper provides empirical evidence on the relationship between unexpected changes in macroeconomic variables and Australian stock returns over the period 1980-1991. The results suggest that stock returns are positively correlated with any surprise news in the current account deficit, the exchange rate and growth rate of real GDP, and negatively correlated with surprise news about the inflation rate and interest rates. Stock returns are also positively correlated with the unexpected unemployment rate and negatively correlated to revisions in the expected unemployment rate. The results furthermore suggest that market portfolios can detect the impact of common economic shocks better than the portfolios of the two main sub-sectors of the market.

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	<u>Contents</u>	<u>Page</u>
Summary		iii
I.	Introduction	1
II.	The Choice of Variables and the Source of Data	2
	1. Variables	2
	2. Data sources	3
III.	Development of the Model	4
IV.	Empirical Results	5
	1. Current account deficit	5
	2. Foreign rate	7
	3. Inflation	7
	4. Real activity	8
	5. Interest rates	8
V.	Conclusions	9
Text tables		
1.	Descriptive Statistics, 1980-91	10
2.	Stock Market Response to Current Account Deficit for the Period 1985-1991	11
3.	Stock Market Response to Current Account Deficit for the Periods 1985-87 and 1988-91	12
4.	Stock Market Response to Changes in Exchange Rate for the Period 1988-91	13
5.	Stock Market Response to Changes in the Inflation Rate for the Period 1980-91	14
6.	Stock Market Response to Changes in Inflation Rate for the Period 1985-91	15
7.	Stock Market Response to Changes in Unemployment Rate for the Period 1988-91	16
8.	Stock Market Response to Changes in the Growth Rate of GDP for the Period 1985-91	17
9.	Stock Market Response to Unofficial Overnight Cash Interest Rate for the Period 1988-91	18
10.	Stock Market Response to the 90-days Bank Bill Yield for the Period 1988-91	19
11.	Stock Market Response to the 10-year Bond Yield for the Period 1988-91	20
References		21-22

Summary

The common cause of variations in Australian share prices has been empirically tested for the market as a whole and separately for industrial and resource sectors. According to the rational expectations theory and efficient market hypothesis, currently available information is totally embodied in share prices. Expected news has no effect, and share prices move only in response to "real" news, which has not been anticipated by the market.

The revisions in expected changes and unexpected changes in macroeconomic variables have been identified as two main sources of surprise news. In this paper, data on expected changes in macroeconomic variables are both collected from survey forecasts and estimated through ARIMA procedures. Unexpected changes in macroeconomic variables from survey forecast data are the difference between actual and expected figures. Unexpected changes in macroeconomic variables from ARIMA procedures data are the residual errors of the regression. The results suggest that revisions in expected changes and unexpected changes in the current account deficit, the exchange rate, and the GDP growth rate, as well as unexpected changes in the unemployment rate, are positively correlated with share prices. Revisions in expected changes and unexpected changes in inflation and interest rates, and revisions in the expected unemployment rate, are negatively correlated with share prices. The empirical results also suggest that the market portfolio capture the impact of common economic shocks better than industrial and resource sectors, which have been influenced by industry-specific events.

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I. Introduction

The expectations and actual outcomes on macroeconomic variables are the common determinants of share price movements in the stock market. According to rational expectation theory, currently available information is totally embodied in the expected future change in share prices and is not interpreted as "news" in the stock market. Share prices normally move in response to incoming information which has not been expected by the market participants. The efficient market hypothesis also suggests that market reaction to surprise news is almost instantaneous and slow dissemination of information is a sign of market inefficiency. Present study applies these theoretical frameworks to Australian data and examines the impact of surprise changes in economic variables on the value of Australian shares.

Earlier research works in this area have focused on testing inflation impact on share prices according to Fisherian hypothesis. An extended version of this theory suggests that real return on stocks is determined by real variables and is independent of inflationary expectations. Studies conducted by Jaffe (1976), Fama (1977), Saunders and Tress (1981), Gultkin (1983) and Solinik (1983), however, largely reject this theory and suggest that inflation is negatively correlated with share prices. Fama (1981), Feldstein (1980), Geske et al., (1983), Kaul (1987) and Pearce et al., (1988) have suggested some theoretical explanations such as risk premium and proxy hypothesis for this phenomenon, while Mandelker et al., (1985), Hiraki (1985), McCarthy et al., (1990) and Najand (1991) provide empirical evidence based on these theories.

More recently, researchers have extended the scope of their studies to other macroeconomic variables and other financial markets. For the United States, for example, one can refer to the studies conducted by Fama(1981), Chen et al., (1986), Pearce et al., (1986) and Harouvelis (1987). For European countries, reference can be made to works by Wasserfallen (1989) and Asperm (1989). Fama's findings suggest that there is a positive relationship between stock returns and future real output and a negative relationship between expected inflation and expected real activity. Chen et al., identified expected and unexpected inflation, industrial production, the spread between long and short term interest rates and the spread between high and low grade bonds as systematically affecting stock returns. Pearce et al., found that the money announcement surprises significantly effect stock prices. However, the impact of inflation and measures of real activity on the stock prices are not totally supported by the empirical evidence. Harouvelis findings indicate that stock prices respond to monetary news and to release of information on trade deficit, unemployment rate and personal income; but not to inflation and output.

Wasserfallen (1989) studied the unexpected change in inflation, money supply, interest rates and measures of real activity on stock markets of Great Britain, Germany and Switzerland. His findings indicate that the effect is "either very small or obscured by a low signal to noise ratio," (page 613). In an extended study on ten European countries, Asprem (1989)

found that stock prices are negatively related to interest rates, inflation, imports, and employment and positively related to measures of real activity, money and the yield curve in the United States.

Dwyer and Hafer looked at the effects of the money supply, consumer prices, producer prices, unemployment rate, industrial production and trade balance on interest rates in the United States. Their findings suggest that only unexpected change in the money supply has a significant effect on the interest rates. The impact of other variables are negligible.

Of more relevant to Australia, is a study conducted by Saunders et al., (1981) on the impact of inflation on the Australian stock market. They analyzed the relationship between stock returns and inflation rates over the period of 1965-69. The results were consistent with the findings for other countries and showed that stock return is negatively correlated with inflation. Gultekin (1983) also studied the relationship between Australian stock returns and inflation rate in combination with 23 other countries. The findings for Australia and most other industrialized countries showed a negative relationship between stock returns and inflation.

The present paper differs in two main ways from previous studies conducted in this area for Australia. First, previous studies have been mainly centered on measuring the impact of inflation on share prices. This study extends the analysis to several macroeconomic variables, such as inflation, current account deficit and interest rates. Second, previous studies used lagged, contemporaneous or lead inflation rates as a proxy for expectation data and no explicit reference was made to the impact of the unexpected component of the variables on stock prices. Here, we utilize survey forecast data and Autoregressive Integrated Moving Average procedures (ARIMA) to estimate the unexpected component of economic news and examine their impact on share prices.

II. The Choice of Variables and Data Sources

1. Variables

The choice of economic-wide variables that explain variations in the share prices are not exactly defined by the theory. According to Fama (1990), "the variables used to explain returns are chosen largely on the basis of goodness-of-fit rather than directives of a well developed theory," (page 1107). In the present study, the choice of explanatory variables has been constrained by availability of survey forecast data to: current account deficit, the inflation rate, the unemployment rate, the growth rate of GDP, interest rates and the exchange rate (the value of the Australian dollar with respect to the U.S. dollar). A dummy variable, also, has been added to the explanatory variables to capture the impact of the 1987 market crash. The independent variables included in this study are All Ordinary Accumulation Index as a proxy for the market portfolio, and, the

All Ordinary Industrial Accumulation Index and the All Resources Accumulation Index as proxies for the two main sectors of Australian equity market.

2. Data sources

Data on actual variables has been collected from the Australian Bureau of Statistics (ABS), Australian Stock Exchange (ASE) and the Reserve Bank of Australia (RBA). The unexpected component of each variable in the survey of forecast data is estimated as the difference between the actual and the expected value of that variable. An alternative ARIMA procedure is also applied to estimate expected and unexpected change in macroeconomic variables.

Sources of data for survey forecasts are Westpac Banking Corporation (WPBC) and Money Market Service International (MMSI). WPBC regularly surveys approximately 1,200 people nationwide, and asks what their expectations about inflation rate are for one period ahead. The figures used in this study are the averages of the survey respondent's expectations. The MMSI survey polls approximately 30 to 40 market professionals and financial economists from the largest banks, superfunds and public finance authorities about their opinions concerning future changes in macroeconomic variables. Expectations about interest rates are given for two and four weeks ahead. Expectations about the exchange rate (only with respect to the U.S. Dollar) are expressed for one and four weeks ahead. Expectations about inflation and gross domestic products are one quarter ahead. Expectation about unemployment and current account deficit is one month ahead. Expectation figures from MMSI used in this study are the median response from survey participants.

The actual and expected figures for the balance of payments deficit are available on a monthly basis. The actual and expected GDP growth rate and inflation rate (CPI) are available on a quarterly basis. Data on actual interest rates is drawn (or taken) from the closing rate on Friday of each week. Time series on accumulation indices start from 1980 and are available on a daily, monthly and yearly basis.

With the exception of inflation, survey expectation data for Australia is hard to find and, as in the United States, is not readily available to the public. ^{1/} For inflationary expectations, one can refer to the Reserve Bank of Australia expectation series, the Financial Review series, the WPBC series and MMSI series. Econometric Research Pty. Ltd. conducts interest rates surveys. For a broad number of economic variables, survey forecast data has been available from MMSI since mid-1985. However, the limited expectation data puts constraints on the empirical analysis; especially for quarterly data, and on the number of explanatory variables

^{1/} Wasserfallen (1989) refers to the same problem for European countries.

that could be simultaneously included in an equation. The problem was further aggravated by missing expectation data, especially for the unemployment rate, which forces one to limit the sample to the 1988-91 period.

III. Development of the Model

It is assumed that the aggregate stock returns is explained by expected change in macroeconomic variables, revision in expected change in macroeconomic variables and past and present unexpected change in macroeconomic variables. ^{1/}

$$R_{it} = a + F_t^e \cdot b + DF_t^e \cdot c + F_t^u \cdot d + \sum_{p=1}^n F_{t-p}^u \cdot e_p + u_t \quad (1)$$

where:

t = Time index

R_{it} = Change in index i between t-1 and t.

F_t^e = Vector of expected change in macroeconomic variable at t-1.

DF_t^e = Vector of revision in expectations of macroeconomic variable between t-1 and t.

F_t^u = Vector of unexpected change in macroeconomic variables at t

F_{t-p}^u = Vector of unexpected change in macroeconomic variables p periods prior to t.

Unexpected change in the macroeconomic factors is either the difference between actual and expected change in macroeconomic factors for survey data or forecast error terms from the ARIMA model. A change in expectations about macroeconomic factors is defined as the difference between two subsequent expected changes in macroeconomic factors.

Rational expectation theory suggests that expected change in stock prices at time t reflects all available information up to and including time t-1 and, as a result, the coefficient b should be zero. The efficient market hypothesis also suggests that the stock market reaction to unexpected change in macroeconomic factors are instantaneous and provides no arbitrage opportunity for investors, so the coefficient e should also be zero.

^{1/} Different versions of this model have been applied in studies by Pearce, et al., (1985), Hardovelis (1987), Wasserfallen (1989) and Dwyer, et al., (1990).

An unexpected change in macroeconomic variables is real surprise news to the market and suddenly influences share prices, so it has a non-zero coefficient. The revision in expectations about macroeconomic variables between $t-1$ and t is another variable, which may contain surprise information that is separable from information on an unexpected change in macroeconomic variables and may have an independent influence on share prices. ^{1/}

Based on this theoretical framework, accumulation indices have been regressed on the components of macroeconomic variables that contain surprise news, i.e., revision in the expected change and the unexpected change in macroeconomic variables.

Owing to the small number of available expectation data, the number of explanatory variables which could be simultaneously included in each equation was limited. As a result, regressions for each macroeconomic variable was run separately. The estimated equations were examined for serial correlation, heteroskedasticity, normality and the structural stability of the model. The Cochrane-Orcutt procedure was used to reduce serial correlation problems in five different cases. A coefficient was assumed to be "significant" if it was statistically significant--at least at a 5 percent level. Since data on the expected and the actual inflation rates is available on a quarterly basis, it was only possible to calculate a quarterly real rate of return for accumulation indices and a real GDP growth rate. Monthly and weekly rates of return on indices are nominal. This is not expected to change the final results significantly, as the nominal and real rates of return on shares behave similarly (Wasserfallen 1989).

IV. Empirical Results

Table 1 shows the mean and standard deviation of revisions in expected change and unexpected change in all economic variables included in this study. The magnitude of the estimated statistics suggest that the means for none of the variables are significantly different from zero. Based on these results, it is assumed that the estimated data approximates rational expectations and exhibits desirable properties to be used in the present study.

1. Current account deficit

News about the current account deficit influences the share market through expected change in interest rates and in inflation. A lower-than-expected current account deficit strengthens the Australian dollar in foreign exchange markets and eases the pressure on domestic interest rates.

^{1/} This point is argued by Chen et. al., (1986) for inflation and is equally applicable for all macroeconomic variables.

A stronger Australian dollar also means cheaper imported commodities and lower inflation rates. So, a surprise improvement in the magnitude of this figure is perceived to have a positive influence on share prices.

Table 2 presents the results of regressing the change in stock prices on the revision in the expected and the unexpected rates of improvement in the current account deficit for the period 1985-91. Both the results from the survey forecast and the ARIMA procedures' data indicate that coefficients of revision in the expected rate of improvement in the current account deficit are positive, but they are not significantly different from zero. Only the unexpected rate of improvement in the current account deficit has a positive impact on share prices. The coefficients are small in magnitude, suggesting that any 1 percentage point improvement in the current account deficit increases the share prices by between 0.03 and 0.05 percent. The impact of a surprise change in the current account deficit on industrial shares and resource shares is not significantly different from the impact it has on the market as a whole. The size of dummy variables indicates that, due to the market crash of October 1987, the value of Australian shares fell by 43-44 percent. The adverse effect of the market crash was even more severe for the resource sector, as the negative coefficients of 47-48 percent indicate.

The problem of the Australian current account deficit has become more severe in recent years. To see how the stock market reacts to announcements of news on this variable, the sample was divided into two sub-samples of 1985-87 and 1988-91. The results in Table 3 indicate that both the revision in the expected and the unexpected rates of improvement in the current account deficit in the period 1988-91 had a positive influence on share prices. The estimated coefficients for the same variables for the sub-sample (1985-87) period are positive but, are not significantly different from zero. This may be interpreted as a sign of increased sensitivity in the share price response to any surprise change in current account deficit in more recent years. However, the lack of statistical significance for the estimated coefficients for the period of 1985-87 may well be due to the small number of available observations in the sample. A comparison of R^2 from the results in Tables 2 and 3 suggests that a high percentage of variation in share prices is explained by the dummy variable and, when this variable is removed from the equations for the 1988-91 period, only 17 percent of the change in the market index is explained by surprise improvements in the current account deficit. As one expects, a single macroeconomic variable does not normally explain a high proportion of change in share prices. A relatively low R^2 has also been observed in similar studies in the past. The impact of improvement in the current account deficit on the industrial shares portfolio and the resource shares portfolio are similar to the share market as a whole.

2. Foreign exchange rate

The appreciation of the domestic currency with respect to foreign currencies reduces the competitive position of export industries by making their products more expensive to foreigners. This, in turn, reduces their profit and the value of their shares. The results in Table 4 support this hypothesis and suggest that both revision in expected change and unexpected change in the value of the Australian dollar is inversely related to share prices. However, only the coefficients for the unexpected change in the value of the Australian dollar are significantly different from zero. The results are consistent for both survey forecasts and ARIMA procedures' data. Although the magnitude of coefficients and the power of the tests are stronger for the ARIMA procedures, suggesting that historical data has not been properly utilized by the forecasters and, as a result, the rational expectations theory is not fully supported by the empirical evidence. Resource industries play an important role in Australian exports and one would expect to see a stronger response to the exchange rate shocks. This hypothesis is not supported by the relative magnitude of coefficients and the level of their significance for the resource sector. Evidence throughout this study suggests that market portfolios can detect economic shocks better than portfolios of industrial shares or resource shares, which have been influenced by industry-specific events.

3. Inflation

Available observations in the WPBC inflation data allow for a more thorough analysis of the relationship between this variable and the share market. In Tables 5 and 6, real stock returns are regressed on different measures of the revision in the expected inflation and the unexpected inflation rates. The results are consistent with the findings of the previous studies and suggest that all measures of inflation are negatively correlated with real stock returns.

In Table 5, the estimated coefficients from survey forecast data are compared with the result of estimated coefficients from the ARIMA procedures' data. The size of coefficients, the power of the test and the magnitude of R^2 suggest that survey forecasts outperform ARIMA procedures. For revision of the expected change in inflation rates, only the coefficients from the survey procedures data are statistically different from zero. The results from the ARIMA procedures data are negative, but not significantly different from zero. This is not surprising, because the expected change in coefficients from ARIMA procedures' data only reflect historical information, while expected change in coefficients from the survey forecasts may reflect other information as well.

The examination of the estimated coefficients from two different surveys forecasts data in Table 6 show mixed results. For WPBC survey data, the coefficients for unexpected change in inflation provide more explanatory power while, for the MMSI survey data, the revision in the expected inflation coefficients shows more information content. Dummy variables explain the 17-21 percent drop in the value of the market portfolio in the

fourth quarter of 1987. The influence of inflation on industrial and resource shares are similar to the market as a whole.

4. Real activity

Measures of real activity are directly related to the stock returns because of their positive impact on the profits of the firms. The measures of real activity employed in this study are the unemployment rate and the GDP growth rate. Unemployment (employment) is expected to be negatively (positively) correlated with stock returns, as the negative coefficients of revision in the expected unemployment rate in Table 7 imply. This coefficient is statistically significant for the market as a whole, but not for the industrial and resource sectors. In contrast to one's expectation, the market has responded to the unexpected unemployment rate in the 1988-91 period. This may be due to the fact that higher-than-expected unemployment rates have been interpreted by the market as a signal by the government to ease monetary and/or fiscal policies which boost share prices.

The revision in the expected and the unexpected GDP growth rates is positively correlated with stock returns, as the results in Table 8 indicate. The coefficients from survey data suggest a 1 percent upward adjustment in the expected GDP growth rate, increases the rate of return on market portfolio by 3.22 percent, or a 1 percent unexpected increase in GDP growth rate will increase the value of shares by 1.77 percent. From ARIMA procedures' data, only an unexpected GDP growth rate is significantly different from zero, suggesting that survey forecast data contain information more than historical data. The coefficients for the industrial and the resource sectors, however, are positive but not significantly different from zero.

5. Interest rates

The interest rate and the return on shares are negatively correlated with each other. A higher interest rate makes the rate of return on debt instruments relatively more attractive compared with equities to the investors. This can reduce the demand for shares and lower their prices. A higher interest rate also means a higher discount factor in calculating the future expected value of cash flows from dividends and lower share prices.

The relationship between a revision in the expected yield and unexpected yields on unofficial overnight cash with the rate of return on Australian shares is presented in Table 9. As expected, both coefficients are negative. However, they are not significantly different from zero. Heavy government intervention in the money market to control interest rates can be the main reason for the lack of significance of those coefficients.

The relationship between yield on 90-day bank bills and the share prices is shown in Table 10. The results from the survey forecast data and the ARIMA procedures data suggest that only the unexpected yield on the 90-day bank bills contains surprise news, which negatively influences the share price. The revisions in the expected yield coefficients are negative, but are not significantly different from zero.

Table 11 provides information on the relationship between a 10-year bond yield and stock prices. From ARIMA procedures data, both revision in the expected and unexpected yields negatively influence share prices. The coefficients from survey forecast data are also negative but only the revisions in the expected yield coefficient is significantly different from zero. This is rather surprising as one would expect to see more information in the survey data. Stronger results from ARIMA procedures data suggest that respondents to survey forecasts have not properly utilized historical data on the 10-year bond yield, which contrasts with the efficient market hypothesis.

An examination of the estimated coefficients and R^2 in Tables 9-11 suggests that explanatory power of interest rates is generally low, but improves as one moves from a short-term money market to a 10-year bond market. The impact of interest rates on the portfolio of the industrial and the resource sector shares is less significant than on the market portfolio. This suggests, again, that a more diversified portfolio can detect the impact of economic news better than individual sectors.

V. Conclusion

The common cause of variations in Australian share prices has been empirically tested for the market as a whole and separately for the industrial and resource sectors. According to the rational expectations theory and the efficient market hypothesis, currently available information is totally embodied in share prices and is not news to the market. Share prices only move in response to the "real" news, which has not been anticipated by the market.

Revisions in the expected changes in macroeconomic variables have been identified as two main sources of surprise news. Data on the expected change in macroeconomic variables is both collected from survey forecast data and estimated through ARIMA procedures. Unexpected changes in macroeconomic variables from the ARIMA procedures data are the residual errors of the regression. The results suggest that a revision in the expected and the unexpected changes in the current account deficit, the exchange rate and the GDP growth rate, and unexpected changes in the unemployment rate are positively correlated with share prices. Revisions in the expected and the unexpected changes in the inflation and interest rates and the revision in the expected unemployment rate are negatively correlated with the share prices, although not all of these coefficients are statistically significant. Regression results also suggest that the market portfolio can capture the impact of common economic shocks better than individual sectors, which have been influenced by industry specific events.

Table 1. Descriptive Statistics, 1980-91 1/

(In percent)

	Survey				ARIMA			
	Revision in Expectations		Unexpected Change		Revision in Expectations		Unexpected Change	
	Mean	SD	Mean	SD	Mean	SD	Mean	SD
Inflation-WPBC	-0.26	1.34	-0.15	0.49	-0.14	0.91	0.02	0.63
Inflation-MMSI	-0.03	0.58	0.01	0.52	0.05	0.81	0.11	0.55
CAD-MMSI <u>2/</u>	6.13	43.17	4.12	64.47	-5.00	58.92	-4.12	37.84
Unemployment-MMSI	-0.34	36.76	-13.05	95.03	0.03	0.36	0.02	0.18
GDP-MMSI <u>3/</u>	-0.07	1.49	0.01	0.12	0.01	0.24	-0.04	0.16
Cash-MMSI <u>4/</u>	-0.05	0.26	0.09	0.22	-0.02	0.08	-0.05	0.25
Bill-MMSI <u>5/</u>	-0.06	0.21	0.03	0.18	-0.02	0.06	0.03	0.11
Bond-MMSI <u>6/</u>	-0.02	0.17	-0.10	0.29	-0.00	0.07	-0.06	0.14
FX-MMSI <u>7/</u>	0.01	1.54	-0.02	0.99	-0.02	0.86	-0.00	0.33

1/ Descriptive statistics on the measures of revision in the expected and the unexpected changes in macroeconomic variables.

2/ Current Account Deficit.

3/ GDP Growth Rate.

4/ Unofficial Overnight Cash Interest Rate.

5/ Yield on 90-Days Bank Accepted Bill.

6/ Yield on 10-years Commonwealth Government Treasury Bond.

7/ The value of the Australian dollar with respect to the U.S. dollar.

Table 2. Stock Market Response to the Current Account Deficit for the
Period 1985-91

(Monthly data)

Coefficients	All Ordinary Acc. Index		All Industrial Acc Index		All Resource Acc. Index	
	Survey	ARIMA	Survey	ARIMA	Survey	ARIMA
Constant	0.02 (3.02)	0.02 (3.06)	0.02 (3.18)	0.02 (2.83)	0.02 (2.13)	0.02 (2.40)
Dummy	-0.43 (9.44)	-0.44 (9.59)	-0.42 (8.36)	-0.42 (8.62)	-0.47 (7.49)	-0.48 (7.31)
Revision in Expected Improvement in Current Account Deficit	0.02 (1.35)	0.00 (0.38)	0.02 (1.01)	0.00 (0.38)	0.03 (1.49)	0.01 (0.88)
Unexpected Improvement in Current Account Deficit	0.03 (2.46)	0.05 (3.25)	0.03 (2.41)	0.05 (3.33)	0.04 (2.51)	0.06 (2.95)
R ²	0.58	0.66	0.53	0.62	0.48	0.55
D-W	1.67	1.70	1.78	2.00	1.84	1.73

Table 3. Stock Market Response to the Current Account Deficit for the
Periods 1985-87 and 1988-91

(Monthly data)

Item	All Ordinary Acc. Index		All Industrial Acc. Index		All Resource Acc. Index	
	Survey		Survey		Survey	
	1985-87	1988-91	1985-87	1988-91	1985-87	1988-91
Constant	0.04 (3.91)	0.01 (0.96)	0.04 (3.79)	0.01 (1.11)	0.04 (2.62)	0.01 (0.37)
Revision in Exptected Current Account Deficit Rate	-0.05 (0.67)	0.02 (2.05)	-0.03 (0.39)	0.03 (1.78)	-0.05 (0.83)	0.07 (2.07)
Unexpected Current Account Deficit Rate	0.00 (0.11)	0.04 (3.02)	-0.01 (0.24)	0.04 (3.21)	0.02 (0.52)	0.05 (2.83)
R ²	0.03	0.17	0.01	0.20	0.08	0.15
D-W	2.01	1.61	1.63	1.99	2.11	1.50

Table 4. Stock Market Response to Changes in the Foreign Exchange Rate for the Period 1988-91

(Weekly data)

Coefficients	All Ordinary Acc. Index		All Industrial Acc. Index		All Resource Acc. Index	
	Survey	ARIMA	Survey	ARIMA	Survey	ARIMA
Constant	0.22 (1.28)	0.16 (1.01)	0.17 (0.36)	0.12 (0.78)	0.32 (1.71)	0.02 (1.12)
Revision in Expected Rate of Australian Dollar	-0.17 (1.28)	0.20 (0.53)	-0.20 (1.41)	0.27 (0.64)	-0.07 (0.47)	-0.17 (0.36)
Unexpected Rate of Australian Dollar	-0.37 (2.17)	-0.59 (3.07)	-0.42 (2.26)	-0.38 (1.97)	-0.33 (1.76)	-0.54 (2.61)
R ²	0.05	0.06	0.05	0.03	0.03	0.04
D-W	1.73	1.89	1.68	1.83	1.75	1.71

Table 5. Stock Market Response to Changes in the Inflation Rate for the Period 1980-91

(Quarterly data)

Coefficients	All Ordinary Acc. Index		All Industrial Acc. Index		All Resource Acc. Index	
	Survey	ARIMA	Survey	ARIMA	Survey	ARIMA
Constant	0.04 (0.99)	0.02 (0.81)	0.00 (0.12)	0.02 (1.06)	0.06 (1.02)	0.01 (0.76)
Dummy	-0.17 (4.29)	-0.17 (4.89)	-0.18 (5.68)	-0.17 (5.71)	-0.18 (3.68)	-0.17 (3.59)
Revision in Expected Inflation Rate	-4.96 (3.64)	-0.32 (1.04)	-3.82 (3.24)	-0.30 (1.12)	-5.42 (3.02)	-0.25 (0.59)
Unexpected Inflation Rate	-3.68 (2.45)	-1.72 (2.07)	-4.84 (3.72)	-1.69 (2.36)	-2.95 (1.48)	-1.51 (1.30)
R ²	0.50	0.43	0.57	0.51	0.37	0.28
D-W	1.77	1.65	1.78	1.59	1.75	1.67

Table 6. Stock Market Response to Changes in the Inflation Rate for the Period 1985-91

(Quarterly data)

Coefficients	All Ordinary Acc. Index		All Industrial Acc. Index		All Resource Acc. Index	
	WPBC	MMSI	WPBC	MMSI	WPBC	MMSI ₁ /
Constant	-0.06 (1.31)	-0.01 (0.23)	-0.08 (1.66)	-0.01 (0.36)	0.09 (1.87)	0.03 (0.59)
Dummy	-0.19 (6.70)	-0.18 (5.98)	-0.19 (6.16)	-0.17 (5.23)	-0.20 (6.65)	-0.21 (6.21)
Revision in Expected Inflation Rate	-2.12 (1.47)	-2.65 (1.93)	-1.45 (0.93)	-2.34 (1.52)	-1.34 (0.87)	-4.35 (1.96)
Unexpected Inflation Rate	-6.88 (3.73)	-4.77 (3.69)	-7.44 (3.72)	-4.83 (3.33)	-8.03 (4.05)	-5.92 (3.19)
R ²	0.73	0.72	0.70	0.66	0.73	0.71
D-W	1.90	1.57	1.93	1.61	1.80	2.07

₁/ Adjusted for serial correlation through the Cochrane-Orcutt technique.

Table 7. Stock Market Response to Changes in the Unemployment Rate for the Period 1988-91

(Monthly data)

Coefficients	All Ordinary Acc. Index		All Industrial Acc. Index		All Resource Acc. Index	
	Survey ₁ /	ARIMA	Survey ₁ /	ARIMA	Survey	ARIMA
Constant	-0.97 (1.04)	0.32 (0.85)	-2.95 (1.93)	-0.66 (1.30)	-0.92 (0.61)	1.01 (0.93)
Revision in Execpted Unemployment Rate	-2.40 (1.95)	-2.57 (1.64)	-0.08 (0.02)	-1.69 (0.93)	-3.96 (1.29)	-2.68 (0.67)
Unexpected Change in Unemployment Rate	2.75 (2.18)	1.89 (2.13)	5.51 (3.19)	3.38 (2.52)	3.42 (2.01)	3.51 (1.99)
R ²	0.24	0.20	0.34	0.30	0.26	0.26
D-W	1.83	1.74	1.91	1.80	2.42	2.13

₁/ Adjusted for serial correlation through the Cochrane-Orcutt technique.

Table 8. Stock Market Response to Changes in the GDP Growth Rate for the Period 1985-91

(Quarterly data)

Coefficients	All Ordinary Acc. Index		All Industrial Acc. Index		All Resource Acc. Index	
	Survey ₁ /	ARIMA	Survey	ARIMA	Survey ₁ /	ARIMA
Constant	0.01 (1.30)	0.05 (1.44)	0.01 (1.50)	0.12 (1.32)	0.01 (1.23)	1.19 (0.38)
Dummy	-0.20 (6.57)	-0.20 (6.46)	-0.18 (5.43)	-0.19 (6.12)	-0.20 (5.99)	-0.21 (4.27)
Revision in Expected GDP Growth Rate	3.22 (1.99)	2.71 (1.74)	2.66 (1.75)	1.88 (1.80)	2.40 (1.30)	3.02 (1.61)
Unexpected GDP Growth Rate	1.77 (1.94)	2.19 (2.02)	0.67 (0.64)	1.25 (0.84)	1.24 (1.19)	0.69 (1.28)
R ²	0.72	0.68	0.63	0.65	0.67	0.54
D-W	2.09	2.13	1.81	1.74	2.19	1.68

₁/ Adjusted for serial correlation through Cochrane-Orcutt technique.

Table 9. Stock Market Response to the Unofficial Overnight Cash
Interest Rate for the Period 1988-91

(Weekly data)

Coefficients	All Ordinary Acc. Index		All Industrial Acc. Index		All Resource Acc. Index	
	Survey	ARIMA	Survey	ARIMA	Survey	ARIMA
Constant	0.18 (0.10)	0.11 (0.59)	0.14 (0.07)	0.08 (0.68)	0.28 (0.13)	0.17 (0.84)
Revision in Expected Yield	-0.66 (1.04)	-1.65 (0.82)	-0.69 (1.02)	-1.38 (0.52)	-0.53 (0.75)	-2.07 (0.92)
Unexpected Yield	-0.67 (0.92)	-0.29 (0.43)	-0.35 (0.45)	-0.67 (0.93)	-1.28 (1.59)	0.31 (0.42)
R ²	0.01	0.01	0.01	0.01	0.02	0.01
D-W	1.79	1.83	1.81	1.86	1.70	1.67

Table 10. Stock Market Response to the 90-day Bank Bill Yield for the Period 1988-91

(Weekly data)

Coefficients	All Ordinary Acc. Index		All Industrial Acc. Index		All Resource Acc. Index	
	Survey	ARIMA	Survey	ARIMA	Survey	ARIMA
Constant	0.11 (0.05)	0.10 (0.64)	0.05 (0.04)	0.04 (0.19)	0.12 (0.06)	0.20 (0.40)
Revision in Exptd. Yield	-1.74 (1.41)	1.30 (0.63)	-0.98 (0.89)	0.76 (0.30)	-1.62 (1.43)	2.18 (0.97)
Unexpected Yield	-2.21 (2.32)	-2.46 (2.11)	-2.11 (2.32)	-2.41 (1.89)	-2.23 (1.43)	-2.61 (2.04)
R ²	0.04	0.05	0.05	0.04	0.04	0.05
D-W	1.82	1.89	1.90	1.92	1.76	1.74

Table 11. Stock Market Response to the 10-Year Bond Yield for the
Period 1988-91

(Weekly data)

Coefficients	All Ordinary Acc. Index		All Industrial Acc. Index		All Resource Acc. Index	
	Survey	ARIMA	Survey	ARIMA	Survey	ARIMA
Constant	0.02 (0.01)	0.02 (0.13)	-0.03 (0.01)	-0.05 (0.26)	0.14 (0.07)	0.03 (0.15)
Revision in Expected Yield	-4.47 (4.32)	-5.53 (2.47)	-4.87 (4.52)	-6.31 (2.64)	-4.20 (3.41)	-4.18 (1.64)
Unexpected Yield	-0.31 (0.53)	-3.15 (2.67)	-0.54 (0.90)	-3.99 (3.18)	0.21 (0.30)	-1.85 (1.38)
R ²	0.16	0.10	0.18	0.13	0.09	0.04
D-W	1.80	1.86	1.83	1.97	1.73	1.66

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