Do mergers and acquisitions (M&A) lead to higher share prices of the acquired and acquiring firms listed on the Johannesburg Securities Exchange and thus higher shareholders' returns? *A Case Study*.

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Section A

Theory

CHAPTER ONE

Introduction

The objective of this section is to discuss theory behind mergers and acquisitions. Chapter 2 discusses the forms of mergers and acquisitions, which include, merger or consolidation, acquisition of shares, and acquisition of assets. Chapter 3 details the forces that are driving mergers and acquisitions. That includes, the synergistic motive, the under-valuation motive, managerial motive, and others. Chapter 4 looks at the sources of synergy as suggested by Koutsiaynnis (1982). Sources of synergy discussed here include, revenue enhancement, tax benefits, cost of capital, and debt capacity.

Chapter 5 discusses various ways of identifying a takeover target. For example, decisions can be based on the following: corporate objectives, industrial and financial criteria, and research. The effects of agency problem on mergers and acquisitions are outlined in chapter 6. In this chapter, the following is discussed: how free cash flows lead to agency problem; and how to control agency conflict. Chapter 7 discusses the tax forms of mergers and acquisitions i.e. taxable acquisition or tax-free acquisition. Ways of accounting for mergers and acquisitions are discussed in chapter 8. That includes a detailed discussion of merger accounting and acquisition accounting.

Chapter 9 concludes this section.

CHAPTER TWO

Forms of Mergers and Acquisitions

Ross et al. (1996) identify three forms of acquisitions. These are three basic legal procedures that one firm can use to acquire another firm: (1) merger or consolidation, (2) acquisition of shares, and (3) acquisition of assets.

2.1 Merger or Consolidation

A merger is the absorption of one firm by another. The acquiring firm retains its name and identity, and acquires all of the assets and liabilities of the acquired firm.

A consolidation is believed to be the same as a merger except that an entirely new firm is created. Therefore, in consolidation, both the acquiring and the acquired firms terminate their previous legal existence and become 'shareholders' of the new firm. Within the new firm, there is no distinction between the acquired and acquiring firms since it is not important. Both acquisitions (merger or consolidation) result in combinations of the assets and liabilities of acquired and acquiring firms. Ross et al. (1996, 769) identify the following advantages and disadvantages of a merger as a form of acquisitions:

- A merger is a legally straightforward procedure and is not as costly as other forms of acquisitions. It avoids the necessity of transferring title of each individual asset of the acquired firm to the acquiring firm.

- A merger must be approved by a vote of the shareholders of each firm. Approximately 75 per cent of the shares are required for approval. It is

argued, in addition to the above-mentioned requirement, that shareholders of the acquired firm must have appraisal rights. Ross et al. (1996) argue that the above statement means that shareholders of the acquired firm can demand their shares to be purchased at a fair value by the acquiring firm. They further argue that the acquiring firm and the dissenting shareholders of the acquired firm can not, in most instances, agree on a fair value, which results in expensive legal proceedings.

2.2 Acquisition of Shares

This form of acquisition involves purchasing the firm's voting shares in exchange for cash, new shares or other securities. Initially, this may be a private offer from the management of one firm to another. At some arbitrary stage the offer is then taken directly from the firm to another. This can be accomplished by means of a tender offer. A tender offer is a public offer to buy shares of a target firm. This is communicated to the target shareholders via public announcements such as newspaper advertisements. The classical South African example in the banking sector is whereby the Nedcor Group attempted to take over the Stannic Bank in 1999. On other occasions a general mailing is used in the tender offer. However, mailing is not easy as it requires names and addresses of all the shareholders concerned. Ross et al. (1996, 770) points out the following five factors as key determinants in choosing between an acquisition of shares and a merger:

- In an acquisition of shares, no shareholder meetings must be held and no vote is required. If the shareholders of the target firm do not like the offer, they are not required to accept it and they will not tender their shares.

- In an acquisition of shares, the bidding firm can lead directly with the shareholders of a target firm by using a tender offer. The target firm's management and board of directors can be by-passed.

- Acquisition of shares is often un-friendly. It is an effort to circumvent the target firm's management, which is usually actively resisting acquisition. Resistance by the target firm's management often makes the cost of acquisition by shares higher than the cost of acquisition by a merger.

- Frequently, a minority of shareholders will be held out in a tender offer, and thus the target firm can not be completely absorbed.

- Complete absorption of one firm by the other requires a merger. Many acquisitions of shares end with a formal merger later.

2.3 Acquisition of Assets

A firm can also be acquired by buying all its assets. However, a formal vote of the shareholders of the selling firm is required. Ross et al. (1996) believe that this approach will avoid the potential problem of having minority (as mentioned in point 2.2 above). Acquisition of assets requires transferring title to new owners. The legal process of transferring assets can be expensive.

CHAPTER THREE

Why Mergers and Acquisitions

Studies documented over the 1980s decade have provided alternative explanations for the occurrence of mergers and acquisitions. Generally, corporate restructuring should be undertaken if it would increase shareholders' wealth. However, there are other reasons for corporate restructuring. Corporate critics have long contended that unregulated financial markets are incapable of ensuring that boards of directors effectively monitor corporate markets. A corollary of this view holds that mergers and acquisitions, far from being motivated by management's desire to increase shareholders' wealth, are being initiated by corporate management acting in their own self-interest to the detriment of shareholders.

According to Lev (1982), there are three groups of motives that 'drive' mergers and acquisitions. Lev (1982) classifies these motives using information from the 1940s to early 1980s. According to Lev (1982), the groups of motives are: (1) synergy, (2) under-valuation of target firm's value, and (3) managerial interest. The latter leads to the agency problem as discussed in 5 below.

3.1 The Synergistic Motive

Synergy is said to be created when the value of two combined firms is greater than the total value of individual firms as separate entities. This is the neoclassical view of the firm, in which shareholder interest is paramount and managerial interest is subordinated. Maximizing the shareholder wealth means

that the incremental cash flows from the project, when discounted at the appropriate discount rate, should yield either zero or positive net present value (NPV). Sudarsanam (1995, 14) argues that, under certainty, the discount rate is the risk-adjusted rate with a market-determined risk premium for risk. Lev (1982) takes synergy and divides it into three categories, namely: (1) short-term financial synergy, (2) long-term financial synergy, and (3) operating synergy.

3.1.1 Short-Term Financial Synergy

It is argued that the use of acquisitions is considered to be done in order to boost earnings per share (EPS). This can be achieved by acquiring companies with lower P/E ratios. According to Lev (1982, 360) "this type of manipulation was prominent during the 1960s and is based on the assumption that the market will mechanically apply the P/E ratio of the buying firm to its artificially increased EPS, thereby increasing the share price". Acquisitions can also be used in this way to improve liquidity. Companies often acquire other firms with excess cash or stable earnings in order to improve their own liquidity. This belief is obviously against the efficient market hypothesis for, if the markets were functioning well, there would seemingly be no value in acquiring cash rich companies to fund investment in the buyer's existing business. In addition to that, the same objective of raising cash can be achieved more cheaply by going directly to the capital markets to raise capital.

Lev (1982) argues that the benefits gained from tax provided further reason for acquisition activity. He further argues that, from an US firm's point of view, tax-loss carry forward provisions may provide for a tax shield for the acquiring firm. In those instances where market values exceed book values, accounting conventions allow for the acquiring firms to write up the values of acquired assets significantly. This increases the depreciation tax shield and thus the after-tax cash flow of the acquired firm's operations. Lev (1982, 360) argues that the tax shield "appears to us 'efficient markets' academics to be a legitimate or 'real'

motive; the after-cash profitability of the total firm increases, and thus there appears to be real financial synergies".

3.1.2 Long-Term Financial Synergy

Mergers may increase the combined values of the firm by increasing debt capacity. The larger the size of the combined entity provides lenders with greater protection, thus allowing the combined firm to have a larger debt-to-capital ratio *(this issue is dealt with in details under point 4.4 below)*.

3.1.3 Operating Synergy

Operating synergies are considered to be the most classical motives behind mergers. Bhide (1992, 71) argues that, while operating synergies are 'widely trumpeted' as a benefit of diversification, they are rarely achieved because they require significant changes in the company's organizational format and administrative behaviour that are difficult to come by *(this issue is dealt with in details under point 4.1 below)*.

3.2 The Undervaluation Motive

The undervaluation of the target's assets is the cause for the second group of motives for acquisitions in the late 1970s. Unlike the synergistic motive, no new value is created through the combination of two firms; value that comes from the acquisition of undervalued assets is rather transferred from the selling firm to the buying firm. Under certain conditions the liquidation value of the firm's net assets could be considerably higher than the market value of the firm's ordinary shares. In this instance one could buy the share of the firm far more cheaply than by going to the product market. This argument is premised on there being an exploitable inefficiency in the market.

3.3 Managerial Motive

These motives are concerned with the extent to which managers pursue their own interests ahead of the shareholder interest. They are premised on the idea

that the self-interest of corporate managers may cause them to take actions which do not harmonize with shareholder interests, that of wealth maximization. These managerial objectives are in line with the agency theory *(as discussed in chapter 5).*

"The basic premise of agency theory is rather simple: managers and owners, that is, shareholders have potentially contradictory motivations" (Larker, 1994, 532). Managers, one could argue, are interested primarily in maximizing the utility derived from their compensation and non-pecuniary items, whereas owners are primarily interested in maximizing the share price. Consequently, the decisions of managers can diverge from shareholder interest in several aspects. Agency theory, then, concerns the potential conflicts of interest between managers and shareholders.

Sudarsanam (1995, 16) believes that managers pursue mergers and acquisitions for the following self-interest reasons:

- To pursue growth in the size of their firm since their remuneration, status and power are a function of firm size –*the empire-building syndrome.* Managerial compensation may be related to firm size because of the greater complexity of larger firms. Managers tend to derive intangible benefits such as power and social status when they control large companies. It is also suggested that executive compensation may increase as a result of an increase in the firm size, even when there is no corresponding increase in shareholders wealth. Managers will pursue growth if their compensation is a function of sales growth.

- To deploy their currently under-used managerial talents and skills –*the self-fulfillment motive.* The survival of a firm in a declining or mature industry may, at times, be seriously challenged. Under such circumstances, survival may depend on an orderly exit from that industry

and entry into one with greater growth opportunities. This may be attributed to the fact that the present industry operation may not exhaust the managerial energies and talents available to the firm.

- To diversify risk and minimize the costs of financial distress and re-inforcing *–job security motive.* Risk diversification may be achieved when the acquiring firm and acquired firm's cash flows are not highly positively correlated, thereby reducing the overall variability of the combined entities' cash flows. Such diversification is not necessarily value creating for the shareholders. In a well-functioning capital market, shareholders may construct their portfolios to include the shares of both companies and achieve the required diversification, perhaps at a lower cost than the firm. Thus diversification at a shareholder level may be a superior alternative to firm diversification (*this issue is dealt with in details under point 4.3 below).*

- To avoid being taken over *–job security motive again.* This motive is regarded as 'the most dubious and the least respectable reason, and such as is often clothed in euphemistic and lofty rhetoric about the value of the company's continued independence" (Sudarsanam, 1995, 18). It is suggested in the literature that target managers often go to extra-ordinary lengths to defeat hostile takeover bids. So, in order to achieve immunity from the threat of a takeover, managers may undertake acquisitions assuming that increased firm size confers such immunity. Acquisitions to increase firm size, or to move into growth industries and away from declining ones in which the firm currently operates, are consistent with defensive motive of avoiding becoming a target.

3.4 Other Motives

- **Elimination of In-efficient Management.** There are firms whose value could be increased with a change in management. For example, Jensen and Ruback (1983) argue that acquisitions can occur because of changing

technology or market conditions that require a restructuring of the corporation. Ross et al. (1996) argue that incumbent managers, in some cases do not understand changing conditions and are loathe to abandon strategies and styles they have spent years formulating. Jensen (1986, 327) provides us with an example of managerial efficiency. In the late 1970s, changes in the oil industry included reduced expectations of the future price of oil, increased exploration and development costs, and increased real interest rates. As a result of these changes, substantial reductions in exploration and development were called for. However, many oil company managers were able to 'downsize' their firms. Ross et al. (1996, 779) corroborates this with a study by McConnell and Muscerella which reported that the share prices of oil companies tended to decrease with announcements of increases in exploration and development expenditures in the period 1975-1981. Acquiring companies sought out oil firms in order to reduce the investment levels of these oil companies. Mergers and acquisitions can be viewed as part of the labour market for top management. Jensen and Ruback (1983) have used the phrase *market for corporate control*, in which alternative management teams compete for the rights to manage corporate activities.

- **Surplus Funds.** This is a tax argument for mergers. "A firm that has *free cash flow*, that is cash flow available after payment of the taxes and after all positive net present value projects have been provided for, aside from purchasing fixed-income securities, the firm has several ways to spend the free cash flow, including payment of dividends, buying back its own shares and acquiring shares in another firm" (Ross, et al., 1996, 781). In South Africa, there is a secondary tax on companies (STC). STC is the tax paid on dividends paid out to shareholders. It is an expense to the company, which can be prevented by not declaring dividends. Therefore, dividend policy dictates that an extra dividend will increase the income tax paid by some investors. Investors pay lower taxes in a share repurchase (it must

be noted that share repurchase is not allowed in South Africa). However, this is obviously not legal if the sole purpose is to avoid taxes that would otherwise have been paid by the shareholders.

CHAPTER FOUR

Where Synergy Comes From

This chapter is based from the book called **Non-price Decisions** by Koutsoyiannis (1982). If we assume that the goal of every manager is to maximize the market value of shareholders' wealth and therefore the maximization of the market value of the firm, then the acquisition will be beneficial to the acquiring firm if the combined firm value is greater than the sum of the values of the separate firms. Algebraically, this can be represented as follows:

$V_{AB} > V_A + V_B$

where V_A = value of firm A,

V_B = value of firm B, and

V_{AB} = value of combined firm.

According to Modigliani and Miller (1958), the value of the levered firm is equal to the value of identical unlevered firm plus the present value of interest tax shield. Therefore, Koutsiyiannis (1982, 232) argues that the value of the levered firm can be expressed as follows:

$$V_L = \frac{X(1 - Tc)}{Ke} + TcD$$

where: V_L = market value of the levered firm

X = earnings before interest and tax

Tc = corporate tax rate

D = current market value of debt

Ke = discount rate reflecting business and financial riskiness of the levered firm.

The difference between the value of the combined firm and the sum of the values of firms as separate entities is the incremental net gain from acquisitions, ∂V (where $\partial V = V_{AB} - (V_A + V_B)$. When ∂V is positive, the acquisition is said to be generate synergy, else a value destroyer. The incremental cash flow can be increased by revenue enhancement, cost reduction, lower taxes and lower costs of capital.

4.1 Revenue Enhancement

There are several ways in which a merger can increase the expected earnings of the merged firm. These ways include: (1) increase in market power; (2) economies of scale; and (3) faster growth.

4.1.1 Increase in Market Power

A firm can reduce competition by taking over a competitor. This would lead to increase in market power, which in turn would enable the acquiring firm to charge higher prices and, therefore, reap monopolistic profits. This is one of the most common forms of mergers and is referred to as horizontal integration. Therefore, mergers can be used to end price-cutting and establishing industry discipline. Downward vertical merger involves acquiring a related firm, which is not necessarily a competitor. Vertical mergers are oftenly formed in order to ensure a market for a final product.

For example, cement manufacturers acquiring cement users. Upstream vertical integration may also be used for acquiring market power via increasing or creating barriers to entry and/or placing competitors at a cost advantage. Conglomerate is where one firm acquires a completely un-related firm. Conglomerate does not give market power of the same as horizontal or vertical mergers. "The most important effects of economic market power arise from the

ability of conglomerates to pursue several policies which affect their earnings" (Koutsoyiannis, 1982, 335). Such policies are: (1) reciprocal buying agreements with customer-firms; (2) predatory pricing; (3) tie-in sales agreements; (4) exclusive dealing agreements; (5) cross-subsidization of the various branches of the conglomerate; and (6) prevention of potential competition.

A conglomerate has the power to 'force' its suppliers to buy the products of its different branches under the threat that it will stop buying from them –***reciprocal agreements. Predatory pricing*** is price-cutting aimed at the elimination of (usually) smaller firms if they do not follow policies set by the conglomerate. It is a price policy with threatening intent. ***Tie-in sales*** are agreements by which a firm can 'induce' another to buy more than one of its products from a certain company, If, for example one wants X products, he/she must buy Y products as well from the same company. Conglomerates have a larger power for imposing such agreements as compared with non-conglomerate firms. **Exclusive dealing** is the power of forcing customers to buy the products of the conglomerate rather than of a competitor. Conglomerate can cross-subsidize the operations of its various branches. By engaging in selective price discrimination a large conglomerate may monopolize one or more markets, while maintaining its prices at 'competitive levels' in all other markets. Finally, a conglomerate may prevent a potential entrant from entering its markets by taking over the firm.

4.1.2 Economies of Scale

Real economies arise from a reduction in the factor inputs per unit of output, while ***pecuniary economies*** are realized from paying lower prices for factor inputs, due to bulk transactions. As a results of mergers and acquisitions, there may be lower marketing and distribution costs, lower transportation costs, and reduction in inventories. It is also possible, by general re-organization of the operations of the merged firms to consolidate the functions of production, research and development (R&D), marketing, purchasing, administration, and accounting: so as to eliminate duplication of facilities and under-employment of

personnel. Theoretically, these are more readily attainable with horizontal mergers –same nature of companies. It is hard to see it in vertical mergers and even harder (if any) in conglomerate mergers. However, ***synergistic economies, managerial economies*** and pecuniary economies may be realized with all types of mergers.

Synergistic economies arise where, for example, one firm may have a strong research and development (R&D) team, while the other firm may have a very efficiently organized production department. The combination of the two firms increases the efficiency of the consolidated entity. Managerial talent is more likely to be attained in horizontal mergers, because management is experienced (specialized) in running a certain line of business. Verticals and conglomerates involve firms producing different commodities or services, which normally require different managerial skills and experience. It may, therefore, be hard to see managerial economies within these entities. Pecuniary economies may be realized by all types of mergers, from lower prices for factor inputs owing to bulk transactions. Such economies are most important for horizontal mergers. For vertical and conglomerate mergers the most important pecuniary economy is that of cheaper finance. It is argued that a large conglomerate has a large cash flow with which it can cross-finance its various branches. Furthermore, it has access to outside finance (bonds and issue of new shares) at the lowest attainable rates. Hence a small firm can benefit from being absorbed by a larger one and may gain access to cheaper capital.

4.1.3 Faster Growth

It is often argued that an acquisition of another firm enables the acquiring company to enter a new market quickly, avoiding the delays associated with building a new plant and establishing the new line of product. Internal growth is time-consuming, requiring R&D, organization of production, market penetration and, in general, a smoothly working organization. Through a merger a company can quickly obtain an already established firm in the new market. However, the

main limit to growth by merger is the likelihood that too many acquisitions may create substantial managerial diseconomies: the management of the conglomerate may become unable to control efficiently, co-ordinate and motivate the newly acquired firms.

4.2 Tax Benefits

Under certain conditions, it is possible to observe an increase in the market value of a firm acquiring another, which has a large tax-loss-carry-forward. Tax laws allow income deferrals. Thus the loss of the acquired firm can be subtracted (for tax purposes) from the current income, the previous years income, or be carried forward (and be subtracted from the future income) for up to certain number of years. It is argued that this tax-loss-carry forward may reduce the taxable income of the merged entity, making it fall into a lower tax bracket. In the valuation expression, it is seen that the marginal tax rate appears with the negative sign in the firm term on the right-hand side, implying that if tax rate decreases, the after-tax expected earnings will increase. In considering the effect of a lower corporate tax rate on the market value of a merger, one must take into account not only the above the tax-loss-carry-forward advantage but also the disadvantage of such a lower tax rate associated with the fact that interest payments on debt are tax-deductible. Recall that tax rate appears with a positive sign in the second term in the valuation expression. Therefore, reduction in tax rate can not be the only reason for mergers and acquisitions.

4.3 Cost of Capital

it is often argued that one of the greatest advantages of mergers, especially conglomerate mergers, is the reduction in ***business*** risk through the diversification of the activities of the firm. A reduction in business risk, if attained, reduces the discount rate of the merger (Ke) and hence increases its market value: as risk is lowered; the market value of the merged firm exceeds the values of the companies operating independently. If the firm wants to diversify its activities, the argument runs, it is safer (less risky) to do it by mergers with

existing firm, established distribution channels and accumulated product-differentiation advantage. The internal development and promotion of new products requires time, new know-how and probably extensive (and expensive) R&D effort as well as marketing effort.

Kuotsiyiannis (1982) argue that issues relating to the reduction in the risk via merger need stressing:

- It is commonly believed that, unless the earnings (returns) of the merging firms are perfectly positively correlated, the merger will result in a lower dispersion of the expected earnings of the merged company. In general, the reduction of the risk via a merger depends on: (a) the correlation co-efficient between the profits of the merging companies, and (b) the relative size of the risk of the profits of the two firms. Above all, the variability of the earnings of the merging firms may not remain the same after the merger. Therefore, the correlation should be expected to remain as it is for the foreseeable future.

- Even if the merger reduces the variability of the shareholders' profits, it is argued that it is an expensive way of attaining this result, due to the heavy costs of acquisition. More diversification benefits can be expected when diversification is done at an investors' level. Therefore, since the investors can individually attain the same reduction in risk as merged firm, but at a lower cost and with greater flexibility, they will value the new entity less than the two firms separately. Diversification at a corporate level is not a thing of value to shareholders. The advantage from a possible reduction in the risk of earnings (variability) of the merger may be more offset by the high costs and other disadvantages of conglomerate firms, in such a way that the discount rate which investors apply to the earnings of the merged firm may in fact increase, resulting in a lower market value of the new combined entity.

4.4 Debt Capacity

Koutiyiannis (1982) argues that some financial advantages are possible in two cases:

- It is possible that one of the firms was not using enough debt (optimal debt) financing. Recall Modigliani and Miller (1958) – the market value of a firm increases with increased use of debt, up to the point of its debt capacity (or optimal debt). This is due to the tax-deductibility of the interest payments to bondholders. If the use of debt is below its debt limit, the firm will be under-valued in the capital market. If this firm is acquired by another and the acquirer increases its debt amount to its limit, the market value of the merged firm will exceed the market values of the firms as separate independent units. Although this is possible source of financial advantage to the merger, it does not seem to be important in the real world. If a firm is undervalued because of its low debt-to-equity ratio, it is bound to be 'discovered', not only by aggressive takeover raiders, but also by other investors in the market (such as insurance companies, trust funds, mutual funds, and others). Given the time required to consummate a merger, it is more likely that other investors will start buying the shares of the undervalued firm, thus bidding up its market value. In fact, the announcement or even the rumour of the possibility of merger is likely to attract attention to the shares and cause it to be bid up to a level such that it is no longer under-valued.

- The amount, that creditors are prepared to lend a corporation, depends, among other things, upon their 'estimate' of the likelihood that the corporation will default, that is, the probability that the firm's earnings will be lower than its required payments on debt. A merged corporation can divest cash from one of its divisions to another if the latter's earnings are insufficient to cover its debt

payments. Hence lenders of a conglomerate face a smaller risk of default, and are prepared to provide more capital to the merged entity than they would give to the two individual separate firms. This advantage of merger is greater for conglomerate than for horizontal mergers, since the returns (profits) of the various branches of a conglomerate are (hopefully) less correlated in any one period.

CHAPTER FIVE

The Agency Theory

5.1 How free cash flow leads to agency problem.

Free cash flow is normally measured as the operating cash flow after the firm has met its tax commitments, and after it has financed the currently available investment opportunities. According to Jensen (1986), free cash flow is the cash flow in excess of that required to fund all projects that have positive net present values when discounted at the relevant cost of capital. The literature indicates that such free cash flow is generally available to profitable firms in mature industries with few growth prospects. Managers of those firms therefore have the option to increase the dividend payout or recapitalize their firms, that is, buy back equity, and have more debt and less equity in their firm's capital structure. Either course would reduce the size of the free cash flow. As an alternative, Sudarsanam (1995) suggests that managers could use the free cash flow to finance diversifying acquisitions, which might turn out to be negative NPV investments. He further argues that in the 1960s many firms in tobacco, food, oil and other mature industries diversified into un-related businesses with poor subsequent financial performance and value decline for their shareholders. In the 1980s, such firms themselves became the targets of hostile takeovers.

The imperative issue then is how managers can be included to make use of the free cash flow in an optimal way from the shareholders' perspective. Jensen (1986) argues that the problem for shareholders is to motivate managers to disgorge the excess cash rather than investing it at below the cost of capital or wasting it on organizational in-efficiencies. Sudarsanam

(1995) believes that free cash flow is not in itself a manifestation of the agency conflict between shareholders and managers but that when put to improper use by managers, it can accentuate that conflict.

5.2 How to control agency conflict

Sudarsanam (1995) argues that a number of control mechanisms exist to minimize the incidence and cost of agency conflict to shareholders. He further argues that agency conflict can be controlled internally and externally. Internal controls include, among others: (1) shareholder-management alignment devices, (2) a rigorous policing of managerial conduct, and (3) managerial compensation contracts. External mechanisms rely on the discipline imposed on managers by the product market in which the firm sells its output, the managerial labour market where managers with a reputation may command premium wages, and the market for corporate control in management teams compete for the right to manage corporate assets.

5.2.1 Internal controls

Since the source of agency conflict stems from the divorce of ownership from control, aligning the interests of the managers and the shareholders may therefore mitigate it. Where managers own shares in their own companies, their interests are partly aligned to those of the shareholders. Executive share option schemes operated by many companies are intended to accomplish such as alignment. Cartwright and Cooper (1996) state that management receive their reward in many forms i.e. returns to their shareholding; direct pecuniary remuneration in the form of salaries, bonuses, and indirect psychological rewards of control, power or status. However, it is argued that making managers part-owners of the firm by offering share options may not influence their behaviour towards alignment if they derive more reward from the other two sources. In addition, share ownership by managers may potentially facilitate their entrenchment and protect them from the discipline of other internal controls, as well as external controls. It is stressed that

disappointingly enough, it is not clear at what level of managerial shareholding, alignment gives way to entrenchment.

Institutional arrangement, such as outside non-executive directors, is required in order for the policing of management to be effective. Likewise, performance-linked remuneration to managers requires a mechanism for clearly meeting managerial performance and establishing a formula for rewarding that performance. Sudarsanam (1995) argues that by way of the 1992 Cadbury Report, UK companies have sought to improve corporate governance by proposing the inclusion of a sufficient number of non-executive directors and establishment of remuneration committees. However, Sudarsanam (1995) argues that these controls may be weak, since executive directors can control the board and the remuneration committee with their own henchmen. He further argues that this undue behaviour was verified through surveys conducted by KPMG Peat Markwick in 1994, and BDO Binder Hamlyn in 1994. in addition to this, it has been observed that while their large block of holdings enable the institutions to monitor management effectively; in practice, they have been rather reluctant to play that role. They defend themselves by pleading a lack of expert knowledge to assume an interventionist role. Furthermore, institutions may also receive side payments for other business relations with firms, such as underwriting. Such relations, according to Sudarsanam (1995), may create a conflict of interest and dilute monitoring by institutions in their role as shareholders.

5.2.2 External Controls

The product, managerial, labour and corporate control markets have been proposed as agency conflict control devices. Even though they are not specifically designed for that purpose, they can nevertheless play a correctional role when managerial failure has occurred. The deterrent against the pursuit of managerial self-interest, is the fear that these markets will punish managerial failure by allowing displacement of failed managers. Of

course, these markets may discipline failing managers whatever the cause of such failure. Sudarsanam (1995) explains that the disciplinary role of the market for corporate control is of particular relevance to acquisitions. In these markets, corporate assets are traded between management teams. The objective here is that the management team capable of generating the greatest value-creation will 'reign' supreme. Sudarsanam (1995) argues that hostile bids which are resisted by the incumbent managers are a necessary part of the disciplinary role of the market for corporate control and indeed, they are its defining characteristic.

The operation for efficient corporate control therefore rests on in-efficient teams being ousted by superior management teams. Unfortunately, Sudarsanam (1995) argues that conceptually, the winning management team may make the acquisition motives inconsistent with shareholder wealth maximization. Moreover, in many cases acquirers overpay for their targets. He further argues that hostile takeovers may be an inefficient and expensive method of correcting managerial failure.

CHAPTER SIX

How to Identify Takeover Target

This chapter is based mostly from the book called ***International Mergers & Acquisitions*** by ***Earl P and FG Fisher, 1986, 1-17***. When a company desires to expand by means of merger or acquisition rather than continuous, natural growth, it is faced with the task of identifying suitable candidates for acquisition. The significance of finding the right target is analogous to the importance of finding the right marriage partner: if two companies are badly matched or too tempe-rational, either the 'union' will fail to occur, or worse still, disastrous results will lead to an eventual corporate 'divorce'. In isolated instances, a thoroughly unsuitable pairing may lead to the annihilation of both partners. Thus the process of identification of a suitable target is of primary importance. It is emphasized that the long-term industrial logic, which determines the selection of a takeover candidate is critical as the immediate financial or share market effects of the move itself.

Earl and Fisher (1986) advocate that, only if a company adheres to a specific set of acquisition guidelines, it will be able to discern the difference between a good and a bad opportunity; and then it will be in a position to actively initiate the research which will identify the correct target. They highlight the following three distinct categories in the process of identifying a target:

- Deciding on corporate objectives –what the company wants to achieve.
- Setting industrial and financial criteria –what will be the minimum industrial benefits that the acquisition must provide and what will be the minimum financial requirements expected of a target; and

- Researching possible candidates –what companies will actually exist in the right location to meet each of these requirements.

6.1 Corporate Objectives

The decision to undertake an acquisition may not always come to pass, but it has advantage of forcing company's board of directors to set clear corporate objectives about what it wishes to achieve in the future. It is pointed out, that the fact that an acquisition is being contemplated, should indicate that the company has considered an alternative means to corporate development, that is, organic growth, and decided against such a route. This presupposes a series of desires, aims and specifics for expanding the company.

The first stage for identifying acquisition candidates is for the would-be acquiring company to set out its own overall objectives. This task should be conducted in relative simplicity and at the most senior level in the company. The literature reveals that a company is more able to state its objectives on the basis of the directors posing a series of questions to themselves. Incidentally, these are precisely the same questions that a merchant banker asks his clients about their proposed expansion or acquisitions plans. According to Earl and Fisher (1986), there are basically nine broad categories around which the director should pose the most probing questions, namely: (1) which industry, (2) which project, (3) which market, (4) what market share, (5) what market size, (6) what capital expenditure, (7) why overseas, (8) which country and (9) at what risk.

6.2 Industrial and Financial Criteria

Once the overall corporate strategy for expansion of the company has been fully defined into a sense of objectives, a list of precise criteria may be drawn up to judge whether a potential target is a suitable or unsuitable candidate for acquisition. This is owing to the fact that a company that does not have distinct acquisition criteria set within very narrow boundaries is likely to waste

an in-ordinate amount of time –both its own and that of its advisers – consideration of thoroughly inappropriate candidates which should have been rejected at an early stage of screening. Clear, precise and uncompromising criteria drawn up at the start of the selection process dramatically increase the likelihood of finding the right target. However, at the same time being specific enough to rule out all unsuitable candidates.

Criteria should cover the industrial and financial requirements of the acquiring company. It is stressed that these should also represent in full the qualities of a perfect target –it will be for company's board of directors to decide if there are indeed any candidates which ultimately match up to their demanding selection criteria. Having specified the criteria, the company's management and advisers can then initiate the search process itself, which will lead to an essential shortlist of suitable candidates.

It is imperative for the company to realize that the criteria for making an acquisition, once set, should not be used exclusively in search of the takeover targets. This is owing to the fact that frequently a company discovers, after it has begun the search for an acquisition target, that a number of its subsidiaries do not match the high standard that is required of a new corporate purchase. Hence, criteria for an acquisition are frequently used as criteria for divestiture as well. In such a manner, subsidiaries within a corporate group may be compared with the parent company's requirements. Those who fall below what is expected of an acquisition candidate should be considered candidates for divestiture if their performance cannot be improved.

6.3 Research

Once the acquisition guidelines have been drawn up, the search for a shortlist of suitable potential targets may begin. At the end of what Earl and Fisher (1986) term ***the research phase***, the company will have available enough

industrial and financial information covering a number of different candidates to be able to select its final target.

According to Earl and Fisher (1986), there are essentially three features of the research phase, which needs emphasis. The **first** of these is that, whether the ultimate target is likely to be publicly listed on a share exchange or privately held –nothing does greater damage to the interests of the acquiring company than to have its intentions indiscriminately broadcasted to markets and competitors. The worst consequences of indiscretion will be a dramatic, upward movement in the share price of a quoted target under the scrutiny of the company's researchers. Earl and Fisher (1986) advocate that bid rumours push up a target's share price so that the acquirer has to pay a higher price if he wishes to proceed, or is forced because of the price movement to call off his acquisition plans. In light of this reasoning, the general contention in mergers and acquisitions literature is that even if a target is not listed and hence there is no possibility of a share price movement, indiscreet talk can lead to equally damaging rumors, detrimental both to the target and the acquirer, such that uncertainty about a company's future, whether it be the initiator or the recipient of a takeover move, inevitably has adverse consequences for both parties. Earl and Fisher (1986) thereby contend that only firm, committed takeover plans should ever be publicized, and for this reason all acquisition researchers should attempt not to disclose privately the real intentions of the company as they conduct their research.

The **second** feature of a professional standard of acquisition research is that the techniques employed should have equal application for companies attempting to find a buyer for one of their subsidiaries to be divested as for companies attempting to find an acquisition target owned by a seller or a group of shareholders willing to sell. Earl and Fisher (1986) explain that whether the research team is looking for a buyer or seller, the methods of research will be the same. In this regard, it is assumed that the process

described is being put into effect by an acquiring firm looking for a willing seller of a suitable target, but is equally relevant for a successful company disposal.

The **third** major feature of acquisition research is that it becomes a vastly more difficult task to perform if conducted internationally. Research into overseas targets carries with it a set of associated problems and expenses. While this section attempts to explain how best to undertake international research, it is advised that the difficulties and costs involved should be clearly understood by any company contemplating an international takeover. Earl and Fisher (1986) ascribe to the fact that no matter how much academic work may be completed in the libraries and specialist data banks of the western takeover centres of Lisbon and New York, some part of the research phase must always be conducted in the country where the acquisition is to occur. As such this will always require local assistance.

Earl and Fisher (1986) argue that some takeover research is merely a matter of corrobating information, which the acquiring company's board already has at its disposal because of prior business contacts with the potential candidates. Sometimes, many years of co-operation with the local company by way of trading agreements, licensing arrangements or partnerships and joint ventures will have provided sufficient historical financial and commercial information. In other instances there may be only one obvious candidate in the entire country or market with which a company has been working for many years. In such case, the acquirer will simply engage in a due diligence exercise to verify that the position of a target is exactly as it believes it to be. The exercise may be conducted directly by the members of the company's management, by its merchant bankers, or by the independent local firm of auditors who will produce an investigating accountant report.

Earl and Fisher (1986) further argue that the company knows the type of acquisition it wishes to make in a chosen country and has set itself guidelines on the necessary conditions which a suitable target must meet, but has no knowledge of individual firms in the area. In order to go about finding concrete examples of the ideal which it has set for itself, an experienced team, either part of the company or acting as the company's advisors, will need to begin a methodical search process akin to that used by executive recruitment hunters. The outside advisors selected may be a firm of management consultants, or more likely, an investment or merchant bank or all will use the same methods.

In outline, the authors explain that initially these will work from published sources of information on the industry before talking to experts, associates, government supervisors and industrial advisory groups. The process is systematic and therefore will throw up a wide-ranging list of potential candidates which is later narrowed on the basis of the financial information which each target company is required to file publicly, either with the internationally recognized information services or with the country's company regulators. At this stage, Earl and Fisher (1986) are of the opinion that by the time the research team is finalizing its shortlist with a set of accounts for each candidate, it should have strong feeling for what is going on locally, both in the industry and in the country in which acquisition is to take place.

Finally, Earl and Fisher (1986) advocate that this methodical process of review is one which should be carried out whether the board of a company has commissioned its own search originally or whether a possible takeover opportunity has been brought to the attention of the board by a third party, for example, an investment bank acting on behalf of a seller, or a 'dissident' shareholder seeking to sell a strategic stake in a target. In both cases, a takeover decision must be made on basis of a full review of all available information.

CHAPTER SEVEN

The Tax Forms of Mergers and Acquisitions

"If one firm buys another firm, the transaction may be taxable or tax free" (Ross et al., 1996, 771). Brealey and Meyers (1984) argue that, in a taxable acquisition, the selling shareholders, are treated, for tax purposes, as having sold their shares, and they must report any capital gains and losses on their income tax forms. In a tax free acquisition, the selling shareholders are viewed as exchanging their old shares for essentially new similar ones: no capital gains or losses are recognized. That is, in a tax-free acquisition, the assets are not revalued. Ross et al. (1996) argue that the tax status of the acquisition also affects the taxes paid by the firm afterwards. After a tax-free acquisition, the firm is taxed as if the two firms had always been together. In a taxable acquisition, the assets of the selling firm are revalued and the depreciation for tax purposes is recalculated.

According to Brealey and Meyers (1984, 717), the tax-free status is not an unmitigated blessing and that there can be divergence of interests between the buying corporation and the selling shareholders. The latter will generally prefer a tax-free arrangement if they are showing a profit on their original investment; else they will prefer a taxable arrangement if they are showing a loss. Correspondingly, the buying corporation will prefer a taxable arrangement if the current values of the depreciable assets are substantially larger than their depreciable values in the hands of the seller.

There are basic requirements that determines whether an acquisition is tax-free or not i.e. whether the selling shareholders receive ordinary or preferred shares in the surviving corporation. Brealey and Meyers (1984) argue that in order to establish a tax-free status, three conditions must hold. **First**, the prime motive for the acquisition should be premised on business purposes than for sole tax reasons. Thus, a complicated deal obviously set up to take advantage of the loophole in the tax code might not qualify. **Second**, there must be more continuity of the enterprise. **Third**, the shareholders of the selling company must receive a significant continuing interest in the purchasing corporation.

Brealey and Meyers (1984) provide the following criteria for the tax-free status and argue that they depend on the form of the acquisition:

- **Merger.** As long as a merger satisfies the previous three conditions, it will be treated as tax-free.
- **Acquisition of shares.** It will be treated as tax-free only if payment is entirely in the form of voting shares and if the acquisition gives the buyer ownership of at least 80% of the total voting power. This means that the company cannot be sure when it makes its offer whether it will receive sufficient acceptances for the transaction to be tax-free.
- **Acquisition of assets.** An exchange of assets will be tax-free only if the buyer acquires substantially all the properties of the seller, and if at least 80% of the sellers assets are paid for with voting shares.

CHAPTER EIGHT

Accounting for Mergers and Acquisitions

When mergers and acquisitions occur, the combined entity's financial statements have to reflect the effects of the combination. In many countries, accounting regulations require that the accounts of companies which are members of a group be prepared in the form of group accounts. In the year of combination, the consolidation of new subsidiary with the parent is carried out using different sets of accounting rules depending on the nature of the combination: that is, whether it is treated as a merger or as an acquisition. The two sets of rules are known as merger accounting and acquisition accounting.

Sudarsanam (1995) argues that the method of accounting can have a dramatic effect on the combined entity's post-combination financial performance and condition as reflected in its consolidated accounts. A company foreseeing such an impact may structure its acquisition deals in such a way so as to qualify for their preferred method of accounting. This emphasizes a significant issue which is that accounting rules not only influence the presentation of post-combination performance, but also the financial structure of the deal resulting in the combination.

8.1 Accounting Rules

A business combination can be classified as either: (1) an acquisition or (2) a merger. In the case of the former, the acquiring company purchases the acquired company's shareholders in their company. The acquired company ceases to have any interest thereafter. On the other hand, in a merger, the two groups of

shareholders continue to maintain their interest in their own companies, but also have an interest in other company: that is, they pool their interests. Hence, the American term 'purchase and pooling' for acquisition and merger, respectively.

The presumption behind merger accounting is that the shareholders of the merging companies pool their interests and continue to retain their interests in their companies, albeit now jointly. Merger accounting seeks to preserve this continuity. The principal of continuity is also to mean that the profits and accumulated reserves of the two firms can be pooled without regard to the date of the merger. Sudarsanam (1995) further clarify these two accounting methods: Merger accounting presumes that the merger is not an arm's length transaction, such that the assets of the companies and the payment for the deal need not be stated at fair values. He argues that a consequence of this is that the difference between these fair values also needs to be recognized. That is, where the consideration includes shares, the difference between the fair (market) value and the nominal value of the shares must be recognized as a share premium. The excess of fair value of consideration over the fair value of the asset separately is called *goodwill*. Ross et al. (1996) define goodwill as the fair value of the acquired firm to the acquirer over and above the value of the individual assets of the firm, and it is an intangible asset. Sudarsanam (1995) believes that goodwill is essentially derived from certain competitive advantage that the firm has over its rivals –it consists of the firm's reputation, excellence of research and development, or after-sales service, quality management, demographic advantage, market power, etc. In short, goodwill arises as a result of company's core competencies. In order words, its enabling culture.

According to Ross et al. (1996), merger accounting is used when the acquiring firm issues voting shares in exchange for at least 90% of the outstanding voting shares of the acquired firm. Acquisition accounting is believed to be generally used under other financing arrangements. The literature indicates that, while there are many possible arrangements, the most common is that the acquiring

firm distributes cash and bonds to obtain the assets or share of the acquired firm. In acquisition accounting, goodwill is amortized over a period of years on the shareholders' books. Therefore, just like depreciation, the amortisation expense reduces the income on the shareholders' books. In addition, the assets of the acquired firm are written on the shareholders' books in acquisition accounting. This evidently creates a higher depreciation expense for the combined firm than would be the case for a merger. Consequently, both goodwill and asset write-ups, result in lower reported incomes on the shareholders books for the acquisition accounting than for merger accounting.

The above exposition essentially concerns the effects on the shareholders' books, not the tax books. Ross et al. (1996) argue that, because the amount of tax-deductible expenses is not affected by the method of acquisition accounting, cash flows are not affected. Hence the NPV of the method of acquisition should be the same whether merger or acquisition accounting is used. Brealey and Meyers (1984) argue that, in efficient capital markets, the choice between these two methods should not make a difference whatsoever, but managers and accountants agonize the choice anyway.

Despite this caustic view, Sudarsanam (1995) reveals that, in the United Kingdom (UK) at least, companies have found that the differences between the two methods resulted in acquisition accounting being less attractive choice than merger accounting for acquirers. Therefore, in order to prevent the abuse of merger accounting in the UK, the Statement of Standard Practice 23 states a rather strict set of the following conditions for the merger accounting (Sudarsanam, 1995, 166):

- The offer leading to the business combination must be made to holders of all equity shares and for all voting shares not already held by the offeror.
- The offeror must ensure at least 90 per cent of equity and voting rights.
- Before the offer, the offeror's holding in the target company should not exceed 20 per cent of equity and voting rights.

- Equity should not be less than 90 per cent of the consideration. Thus the cash part of the consideration can not exceed 10 per cent.

Sudarsanam (1995, 166) concludes that "the spirit behind these conditions is that only when pooling and continuity of interests are genuinely maintained should merger accounting be used. However, in practice, companies with their advisors have devised ways of observing the latter but not the spirit of merger accounting rules".

CHAPTER NINE

Conclusion

The objective of this section was to discuss the theory underlying mergers and acquisitions. Chapter 2 discussed different forms of mergers and acquisition, namely, merger, consolidation, acquisition of shares and acquisition of assets. A merger is the absorption of one firm by another. A consolidation is similar to a merger except that an entirely new firm is created. In an acquisition of shares, an acquirer is buying shares of the acquired in exchange for cash. Similarly, in an acquisition of assets, an acquirer is buying all assets of the acquired.

Chapter 3 discusses the motives behind mergers and acquisitions. They include synergy, under-valuation of target firm's value, and managerial interest. Synergistic motives can be subdivided into: short-term financial synergy, long-term financial synergy, operating synergy and others. Undervaluation motive is caused by the fact that the assets of the target are undervalued and, therefore, can be obtained cheaply. Managerial motives are concerned with the extent to which managers pursue their own interests ahead of the shareholders' interests –the agency problem. Other relevant motives include elimination of inefficient management, and free-cash flow (surplus funds).

Chapter 4 looks at synergy in details. It discusses all sources of synergy. Koutsiyiannis (1982, 232) argues that synergy is derived from revenue enhancement (i.e. increase in market power, economies of scale, faster growth); tax benefits, reduced cost of capital, and increased debt capacity.

Chapter 5 looks at other motive for identifying a takeover, i.e. managerial interest. It is argued, under this chapter, that free cash flow leads to agency problem. Sudarsanam (1995) argued that managers free cash flow to finance diversifying acquisitions, which might turn out to be negative NPV investments. He also argued that there are a number of control mechanisms that could be used to minimize the incidence and cost of agency conflict to shareholders i.e. internal and external controls.

Chapter 6 outlines different ways of identifying a takeover target. The process of identifying a takeover target involves: deciding on corporate objectives; setting industrial and financial criteria; and researching possible candidates. When deciding on corporate objectives, the director should pose the most probing questions, namely which industry, which project, which market, what market share, what market size, what capital expenditure, why overseas, which country, at what risk and others. The industrial and financial criteria should ensure that a suitable target is identified for acquisition. Once the acquisition guidelines have been drawn up, the search for a short-list of suitable potential targets may begin.

Chapter 7 and 8 of this section discusses tax forms of mergers and acquisitions, and accounting for mergers and acquisitions, respectively. It is argued that an acquisition can be taxable or tax-free. There are a number of conditions that must be met before the tax status is determined. The two sets of accounting rules are merger accounting and acquisition accounting. Each type of accounting rules has its pros and cons.

Section B

The Empirical Evidence on Mergers and Acqusitions

CHAPTER TEN

Introduction

The objective of this section is to review foreign and South African studies on mergers and acquisitions. Chapter 11 looks at foreign studies on mergers and acquisitions in order to determine the success or failure of mergers and acquisitions in other countries and to verify theory suggested under chapter 4 above. These studies include: Carleton, Guilkey, Harris and Swart (1983); Travlos (1987); Jarrell and Poulsen (1989); Franks, Harris and Titman (1991); Kaplan and Weisbach (1992); and Sullivan, Jensen and Hudson (1994).

Chapter 12 looks at studies that determine the effects of the agency problem on mergers and acquisition in order to verify theory suggested under chapter 5 above. They include: Asquith and Han Kim (1982); Morck, Shleifer and Vishny (1990); and Mitchell and Lehn (1990). Chapter 13 reviews South African studies on mergers and acquisitions in order to determine the pros and cons of mergers and acquisitions in the Republic of South Africa. These studies are: Brews (1987); Affleck-Graves, Flach and Jacobson (1988); and Van den Honert, Barr, Affleck-Graves and Smale (1988).

Chapter 14 concludes this section.

CHAPTER ELEVEN

The success (or failure) of mergers and Acquisitions

11.1 Carleton, Guilkey, Harris and Swart in 1983

Carleton et al. (1983, 814) argue that it is possible that mergers consummated by different types of exchanges stem from different motives and hence that firms acquired by different forms of payment have quite different financial characteristics. They determine which measurable characteristics of the firm have an effect on the medium of exchange used. Using financial statements and share market data of over 1400 companies from the 70s, they divided the sample into three types of firms: (1) non-acquired; (2) acquired in a cash takeover; and (3) acquired in an exchange of securities.

The results show that acquired firms are, on average, smaller than acquired firms, which in turn are smaller than acquiring firms. Additionally, price earnings ratios of acquired firms are lower than those for other firms. Firms that are acquired in cash takeovers have substantially lower dividend payout ratios. There is also evidence that acquired firms use less debt (relative to the industry) than other firms and are more profitable than non-acquired firms. Carleton et al. (1983) point out that there are no significantly different financial characteristics between the acquiring firms using cash or securities in a merger. "The lack of such significant difference between these two groups of acquiring firm makes the split of acquiring firms more likely to be representative of splits based on the medium of exchange, rather than the characteristics of the acquiring firms" (Carleton et al., 1983, 820). The results

also show that the probability of a given firm being acquired increases as its liquidity, leverage, price earnings ratio and size decline, and as its profitability increases. Neither the dividend payout ratio nor ratio of book-to-market value appears to have any statistically significant impact on the probability of being acquired. The major results come from a direct comparison of the two methods of acquisition. The results indicate that firms with higher dividend payout ratios appear to be acquired with a share exchange than with cash.

11.2 Travlos in 1987

Travlos (1987) determine the role the medium of exchange play in the returns of the shareholders. He explores the ordinary shares' returns of the bidding firms at the announcement of takeover bids. He puts forward signalled information and tax hypothesis as to why different methods of payment have different valuation effects on the bidding firms' share prices.

Travlos (1987) argues that, in a world of asymmetric information, the payment method may signal important information. He argues that, if bidding firm's managers have information about the intrinsic value of their firm, not reflected in pre-acquisition share price, they will finance the acquisition in the most profitable way for existing shareholders i.e. a cash offer if the company is undervalued or a share exchange offer if the company is overvalued. If such information effects are important, then returns to bidding firms in cash offers will be higher than in share exchange offers (for tax hypothesis, refer point 11.6.2 below).

The study provides a direct confirmation of a differential-return relationship across different methods of payment for bidding firms announcing takeover bids. The results for the pure share exchange bidding firms show that their shareholders experience significant losses at the announcement of the takeover proposal. Cash financing bidding firms earn abnormal returns at the announcement period. The differences in the abnormal returns between these two groups are statistically significant and independent of the type of takeover

studied. In addition, results based on unsuccessful bids indicate that share exchange offers are associated with negative abnormal returns regardless of the bid's outcomes. The findings in the study are consistent with the signaling hypothesis, which implies that financing a takeover through exchange of shares conveys the negative information that the bidding firm is overvalued.

11.3 Jarrell and Poulsen in 1989

Jarrell and Poulsen (1989) use data from more than 450 tender offers from 1963 to 1986. They test the significance of the following characteristics for their effect on the division of gains between target and acquiring firm shareholders: (1) the relative size of the target to the acquiring firm, and (2) increased competition for the target as measured by management opposition to the bid and the regulatory environment at the time of the bid.

Firms should only undertake investments with a positive effects on the value of the firm. If this is assumed to be the common practice then one would not expect to be a negative share price reaction to the shareholders of the acquiring firm. However, certain rationales lead to these effects. These rationales include the relative size of the target firm to the acquiring firm, the number of competing bidders for a target, and the undertaking of a poor investment. If the investment in the target firm is small relative to the value of the acquiring firm, the increase in value from the merger may not cause much change in the acquirer's share price. Evidence presented in the study by Carleton et al. (1983) suggest that abnormal returns to acquirers grew as size of the target firm increased relative to the acquirer's size.

If there are no competing bidders for the target, the bidder should offer a price just high enough to obtain the number of shares the bidder desires. If there were other bidders, one would expect the offer price to be bid up and a large share of merger returns going to the target and a smaller share being kept by the bidder.

Jarrell and Poulsen (1989) suggest that, when there are multiple bidders, there are significant higher abnormal returns to be earned by the target shareholders.

The results show that the relative size of the target to the acquirer has both a positive and significant effect in cumulative average residual (CARs) earned by the acquiring firm's shareholders. These results are consistent with the hypothesis presented in the above paragraph. With respect to competing bidders, the results show that there is importance of competing bids which is shown by the re-distribution of wealth from acquirers to targets. This is also consistent with the hypothesis presented above. In addition to this, results also show that the returns are affected by the regulatory environment.

11.4 Franks, Harris and Titman in 1991

Franks et al. (1991) argue that there is considerable debate over merger performance and that, as takeover activity continues, the debate over its merits has increased. It is argued that advocates of the benefits of takeovers cite evidence of substantial wealth gains at the time takeovers are announced. On the other hand, critics claim that the positive announcement returns reflect optimistic expectations that fail to be realized. For instance, Jensen and Ruback (1983, 20) report "an average abnormal return of negative 5.5% during twelve months after takeover". These negative returns are "unsettling because they are inconsistent with market efficiency and suggest that changes in share prices during takeovers over-estimate the future gains from merger" (Jensen and Ruback, 1983, 20). Also, Franks et al. (1988) show pessimistic post-merger performance. They used a comprehensive sample of US and UK bidders, straddling a period of 1955 to1985. Because Franks et al (1988) used almost all mergers, it could be argued that the selection bias argument seems less plausible and suggests again that the evidence may be indicative of market efficiency.

Franks et al. (1988) used an *equally*-weighted index in order to determine post-merger performance and their findings confirm earlier studies that found negative post-merger performance. However, when the *value*-weighted benchmark is used, it yielded positive post-merger performance. In contrast, the results generated no significant abnormal performance for the overall sample of bidders when *multiple-factor* benchmark is used. Franks et al. (1991) believe that the later results are to be most appropriate because multi-bench is the better technique for measuring performance. They conclude that prior finding of negative post-merger share price performance for bidders are more likely due to benchmark errors than mis-pricing at the time of announcement. Franks et al. (1991) analyze the subsets of the sample in order to evaluate the possible determinants of post-merger performance. They found that post-merger performance may be affected by means of payment in the takeover. Therefore, there is a link between financing and the value of a firm's assets. Franks et al. (1991) argue that a cash offer should have a more favourable announcement effect on the acquiring firm's share price than an all-equity bid.

11.5 Kaplan and Weisbach in 1992

Kaplan and Weisbach (1992) suggest that acquirers often buy other companies only to sell them afterward and, hopefully, at a profit. Ravenscraft and Scherer (1987) estimate that 33 per cent of acquisitions in the 1960s and 1970s were later divested. Porter (1987) finds that over 50 per cent of the acquisitions made by 33 conglomerate acquirers in 'new' or unrelated industries were later divested. These authors interpret the divestiture rates as evidence that acquisition strategies, particularly diversifying ones, failed to increase and, instead, destroyed value. Bradley et al. (1988) and Jensen and Ruback (1983) conducted event studies. These authors report that the combined share market return to acquirer and target shareholders is positive on average. However, Ravenscraft and Scherer (1987) and Porter (1987) question these event-study results.

Weston (1989) argues that acquirers sell targets for a number of reasons which do not involve poor performance. Kaplan and Weisbach (1992) suggest that it could be sellers plan to sell their target firms at a later stage. Weston (1989) provides an example where an acquirer may sell a business that it has improved or a business that once had synergies with the acquirer's core business but no longer does. In these cases, Kaplan and Weisbach (1992) evaluate the extent to which divestitures in the 1980s represented unsuccessful or failed acquisitions. They studied a sample of large acquisitions completed between 1971 and 1982. they categorized divestitures as successful or unsuccessful acquisitions using accounting data on the gain or loss on sale from the divestiture sale price.

The results suggest that many divestitures are not necessarily failures from an ex-post perspective. For example, of the divestitures with reported gain or loss on sale, 42 per cent report a gain on sale, 44 per cent report a loss, and 14 per cent report that the gain or loss was immaterial. Based on accounting results as well as comments by reporters and managers, Kaplan and Weisbach (1992) classify 34 per cent of the divested acquisitions as unsuccessful, that is, the reason for divestiture appears to be performance-related. Those who view divested acquisitions as failures question the use of the share market reaction to the initial acquisitions announcement as a measure of the acquisition's value. However, the results for gain on sale and sale price are generally consistent with the event-study results that bidders' returns are slightly negative, while combined returns to bidder and target are positive. Kaplan and Weisbach (1992) argue that targets, after the takeover, appear to be worth more than the targets are worth before the takeover occurs. Although target shareholders receive most of the value increase especially if equity was the medium of exchange, these results suggest that acquisitions increase combined shareholder value.

Kaplan and Weisbach (1992) test information content of the share market reaction to the acquisition announcements by comparing the announcement period abnormal returns for divestitures they categorized as unsuccessful. They

found that acquirers' returns and combined (acquirers' and targets') returns at the acquisition announcement are significantly lower for unsuccessful acquisitions that the corresponding returns for successful divestitures and for acquisition that are not divested. This implies that the market is better at evaluating the relative success of acquisitions. There is evidence that the market evaluates managerial decisions in a reasonable way based on their effect on motives: it is argued that acquirers in unsuccessful acquisitions have higher levels of estimated free cash flow than acquirers in successful acquisitions. This could imply that managers with free cash flow do not evaluates their project properly because they can not tell shareholders that they have no positive NPV projects. They tend to invest these surplus funds (free cash flows) in these negative NPV projects.

It is argued that previous researchers have found higher divestitures rates for diversifying acquisitions than for related acquisitions. In light of such evidence, it is argued that diversifying acquisitions were particularly bad investments. Kaplan and Weisbach (1992) consider this possibility by comparing the divestiture rates of related and diversifying acquisitions. They found large differences. Divestitures were almost four times more likely when targets are not in businesses highly related to those of the acquirers. However, the evidence on the success of diversifying versus related acquisitions is mixed. Kaplan and Weisbach (1992) classify 13 per cent of related acquisitions as unsuccessful compared to 38 per cent of diversifying ones. These differences were found to be significant at the 10 per cent level. However, they also found that 43 per cent of diversifying and 40 per cent of related divestitures register a gain on sale.

Kaplan and Weisbach (1992, 137) conclude that "although the majority of diversifying acquisitions in the late 1970s and early 1980s have been sold by the late 1980s, our results are consistent with these acquisitions having increased the combined value of the target and acquirer relative to their next most highly valued use". They also argued that the possible sources of value were, among others, tax benefits, reduced corporate overhead, improved management

systems, and under-valuation. It is believed that, as the 1980s progressed, it appeared that new acquirers were able to bring more value to these targets than original acquirers.

11.6 Sullivan, Jensen and Hudson in 1994

Sullivan et al. (1994) examine the relation between the medium of exchange (cash or shares) and valuation effects associated with terminated merger proposals. A terminated merger proposal is defined as " a failed merger attempt in which no known acquisition negotiations are in process when the termination occurs" (Sullivan et al., 1994, 52). Their sample includes New York (NYSE) and American (AMEX) stock exchanges –listed companies involved in terminated merger proposals between 1980 and 1988 identified in *Merger Review and the Merger Yearbook*. Sullivan et al. (1994) also presented the following hypothesis: (1) synergy, (2) tax, (3) financing and (4) investment hypotheses.

11.6.1 Synergy Hypothesis

Synergy explanations assume that private information regarding the synergistic value of either the target or bidding firm is revealed to the market through the offer medium. A merger is motivated by synergy if the combination of two firms' resources results in economic gains. The bidding firm is the party in possession of this private information and conveys this information to the market through the medium of exchange chosen. Bidding firms' shares react more favourably to cash offers than to share offers at the initial acquisition announcement. If the target firm is able to put up any assistance through bargaining power (created by the competition among bidders or because it has means to resist the merger), the fraction of the synergy captured by the target firm will increase, resulting in the possibility of higher returns for target firms in cash offers than share offers.

When the bidding firm and the target firm are in possession of private information on synergy, it is the level of knowledge that determines the medium of exchange that is used. A bidding firm, for example, may use a share offer to elicit a signal

about the private information possessed by the target firm. If high future synergies are expected by the target firm then the share offer will be accepted, because it will share in future synergies. If information is more pessimistic regarding the future synergies, the share offer will be rejected –an equal value cash offer might be accepted. Under this scenario, the success or failure of a share offer reveals information about a target firm's private information. A cash offer, therefore, signals a high target value and is used to pre-empt competing bids. Sullivan et al. (1994) argue that, depending on the competition present in the acquisition market and the uniqueness of each merger partner, it is predicted that cash premium returns are split between the target and the biding firm. It follows that when the market is highly competitive, the target firm will capture most or even the entire premium. In the event of the bidding firm being able to offer a unique attribute, enabling a potential synergy, the bidding firm will capture most or all of the cash premium.

11.6.2 Tax Hypothesis

This assumes that a merger provides value-enhancing tax benefits that are otherwise un-obtainable. Studies showing higher returns for cash offer than for share offers conclude that this difference is at least partially related to taxes. According to Sullivan et al. (1994, 52), "a cash offer to a target firm requires shareholders to realize an immediate tax obligation on any gain; in a share offer, target firm shareholders are able to delay the payment of capital gains taxes until subsequent sale of the bidding firm's shares". Target shareholders therefore demand a cash premium that at least offsets any immediate tax obligation.

For the bidding firm, the primary tax benefit in a cash exchange is the ability to step up the depreciable basis of acquired assets. In share exchanges, the primary tax benefits are net operating loss (NOL) carry-forwards and the ability to defer depreciation recapture taxes. If the tax benefits derived from NOL carry-forwards and the ability to defer depreciation recapture tax deferment are present, bidding firms are willing to pay the premium necessary to make target

shareholders indifferent between a cash offer and a share offer. Any benefits acquired in a cash offer above of the target shareholders' tax obligations results in a synergy. The tax synergy will be split between the target and bidding firms' shareholders depending on the presence of competition and information asymmetry. If the market for acquisitions is assumed to be perfectly competitive, with symmetric information, target shareholders receive all the tax synergy value related to the offer medium. This tax hypothesis would explain the fact that target firm shareholders realize a cash premium when an acquisition is initially announced. If the offer is terminated, the tax benefits will not be realized and the target firm's share price should revert back to pre-offer price. Sullivan et al. (1994) feel that the tax hypothesis gives no reason to expect the price of the bidding firm's shares to depend on the offer type around either the initial announcement or subsequent termination.

11.6.3 Financing Hypothesis

This explanation proposes that the medium of exchange in a merger signals private information of the bidding firm's value. The objective of the bidding firm is to act in the most profitable way for their own shareholders. If these same managers have information on the intrinsic value of their own firm, they will arrange a potential merger in the most profitable way. In the interests of passive shareholders, bidding managers offer shares when they believe that their firm is overvalued and cash offer if otherwise.

Since the offer medium signals the bidding firm's value, target firm shares should experience no differential revaluation based on offer medium. For the bidding firm, however, a cash offer signals 'good' news to the market, and a share offer signals 'bad' news. Therefore, around the initial announcement date, returns to the bidding firm's shareholders will be higher in the case of cash merger offers. Unlike the potential tax synergy benefits that were lost due to the terminated offer, the signal to the market in this case pertains to intrinsic firm value and so

the bidding firm's share price is expected to continue to reflect this information even after termination of the offer.

11.6.4 Investment Hypothesis

Sullivan et al. (1994, 53) argue that, if medium of exchange signals high valuation of the target firm's stand alone value rather than its synergistic value, a share offer may be used to elicit a target's private information and a cash offer may be used as a way of pre-empting bids. Under this explanation the target and/or bidding firms are assumed to have private information on the target firm's stand-alone value. If the bidding firm has information that the target firm is undervalued in the market, it will offer cash to deter competing bids and to reduce the time available for rivals to analyze target stand-alone value. If value is less certain, shares are offered to force target management into a decision based on their private information of target firm stand-alone value.

As under the signaling hypothesis, bidding and target firms will split the cash premium depending on competition. Target shareholders realize a cash premium depending on competition. Target shareholders realize a cash premium based on a market revaluation that is permanent. The premium continues after termination because the offer type signals stand-alone value. In a perfectly competitive market, the bidding firm's share price is not affected by offer type either at the initial announcement or for the overall period.

The results of Sullivan et al. (1994) study demonstrate that the announcement of merger associated with a certain offer medium (cash or shares) has an effect on the value of the firm which persists even after the offer has been terminated, and it is not dependent on any subsequent bid. The persistence of a cash premium related to the offer medium indicates that information causes a revaluation of target firm's shares. The fact that these return differences are still significant for more than 90 days following the termination, suggests that the target shares are permanently revalued. The results are consistent with the investment and

synergy hypothesis, which state that private information related to a target firm's stand-alone value or synergy potential is revealed to the market through the offer medium associated with a merger proposal. The findings do not rule out the chance that a tax explanation of differential valuation effects may occur simultaneously with the investment and/or synergy explanations. The absence of valuation effects for bidding firm shares provides evidence contrary to the response predicted by the financing hypothesis, suggesting that the offer medium does not signal private information about bidding firm value.

CHAPTER TWELVE

The Agency Problem in Mergers and Acquisitions

12.1 Asquith and Han Kim in 1982

Asquith and Han Kim (1982) investigate whether bids have an impact on the wealth of the participating firms' bondholders. Much evidence has been presented showing the positive impact on the acquiring firms' shareholders and the almost negative impact on the acquiring firms' shareholders. However, Asquith and Han Kim (1982) argue that the positive returns to the shareholders of the acquired firms come at the expense of the other claimants to the firms' wealth.

"Jensen and Meckling argue that there is an incentive for the shareholders of levered firms to expropriate the bondholders wealth by undertaking investment projects which increase the firm's riskiness" (Asquith and Han Kim, 1982, 1209). Since a merger is also a corporate investment, there is an incentive for the shareholders to acquire firms that increase the variability of the firm's cash flow. Shareholders will be able to earn positive abnormal returns at the expense of bondholders by increasing the firm's risk. This would, however, increase the default risk of the bonds, therefore decreasing the wealth of the bondholders. "Galai and Masulis argue that mergers reduce the risk of default of the merging firms by combining two separate cash flows which are less than perfectly correlated" (Asquith and Han Kim, 1982, 1210). A reduction in the default risk would, in this case, increase the market value of the merging firm's outstanding debt. Any increase in the wealth of the bondholders would thus have an opposite effect on the shareholders of the firm.

Asquith and Han Kim (1982) categorize these two different effects as the incentive and the diversification effects. "The first approach focus on the incentives inherent in the agency relationship between bondholders and shareholders, the 'incentive effect', while the second approach focuses on the effect of firm diversification on security holders, the 'diversification effect' (Asquith and Han Kim, 1982, 1210). It is argued that the interaction of these two effects cannot be determined by the shareholders alone. There may, in fact, be synergies to the merger and, therefore the shareholders will gain, which may have no effect on the bondholders.

With respect to bondholders, the results indicate that the entire sample of bonds had a positive average abnormal return during the announcement month. In the months following the announcement month the returns decrease suggesting that the evidence on a positive effect during the announcement month is not conclusive. When distinguishing the acquiring firm and the acquired firm, the average returns during the announcement month for the acquiring firms are positive. This gain is, however, neutralized during the month following the announcement. For the acquired firms, the returns are positive and continue to be positive after the announcement month. The values are small and, therefore, not significant. It is, therefore, clear that the bondholders of acquired firms do not suffer abnormal losses nor receive any significant gains.

With respect to shareholders, the results show that acquiring firm's shares do not show significant abnormal returns are never significant. On the contrary, the results show, for the acquired firms, significant positive abnormal returns for the announcement month across all securities.

12.2 Morck, Shleifer and Vishny in 1990

Bradley et al. (1988) and Roll (1986) argue that average returns to bidding shareholders from making acquisitions are, at best, slightly positive and

significantly negative. Asquith et al. (1987) suggest that negative bidder returns are purely a consequence of share exchange financing that leads to a release of adverse information about acquiring firms. In this case, negative bidder returns are not evidence of a bad investment. An alternative interpretation of poor bidder performance is that bidding firms overpay for the targets that they acquire. Morck et al. (1990) studied a sample of 326 United States acquisitions between 1975 and 1987. They suggest two reasons why bidding firms might overpay in acquisitions, thereby truly reducing the wealth of their shareholders as opposed to just revealing bad news about their firms. These reasons are also supported by Roll (1986). According to Roll (1986), managers of bidding firms pursue personal objectives other than maximization of shareholders value. To the extent that acquisitions serve these objectives, Morck et al. (1990) argue that managers of bidding firms are willing to pay more for targets than they are worth to bidding firm's shareholders

It is argued that when a firm makes an acquisition or any other investment, its manager considers both his personal benefits from the investment and the consequences for the market value of the firm. Shleifer and Vishy (1990) argue that some investments are particularly attractive from the manager's perspective: they contribute to long-term growth of the firm, enable the manager to diversify the risk on his human capital, or improve his job security. When an investment provides a manager with particularly large private (personal) benefits, he is willing to sacrifice the market value of the firm to pursue that investment. Morck et al. (1990) argue that the net present value should be lower than that of an acquisition with no such benefits, *ceteris paribus* –meaning managers will overpay for targets with high private benefits.

Based on the study conducted by Morck et al. (1990), there is support for the proposition that managerial objectives drive acquisitions. Their results show that buying growth is a bad idea from the point of view of bidding firm's shareholders. They argue that growth is one of the managerial objectives pursued either for its

own sake or for the sake of assuring the survival of the bidding firm and the continuity of its top management. The results also suggest that unrelated diversification is a bad idea from the point of view of the bidding firm's shareholders. Morck et al. (1990) argue that, like pursuit of growth, diversification can be understood as serving the objectives of managers. This is so because it is much cheaper to diversify at an investor's level rather than at a corporate level. Finally, their results demonstrate that firms with bad managers (identified by poor performance relative to its industry) do much worse in making acquisitions by poorly performing acquirers. It is evident that bad acquisitions are a manifestation of agency problems in the firm.

12.3 Mitchell and Lehn in 1990

Mitchell and Lehn (1990) examined one motive for takeovers: to change control of firms that make acquisitions which diminish the value of equity. Mitchell and Lehn (1990) argue that, since Berle and Means (1933), it has been widely recognized that a potential divergence of interest exists between managers and shareholders in corporations is characterized by diffusely held equity. They also argue that economists probed institutional arrangements that mitigate this potential conflict and attempted to understand why these arrangements vary from firm to firm. It is argued that takeover is one of the forces that mitigate the manager-shareholder conflict.

Mitchell and Lehn (1990) argue that, according to Marris (1963) and Manne (1965), argue that the share prices of firms in which managers deviate from profit-maximization are less than they otherwise could be and that this difference between actual and potential share prices creates incentives for outside parties to acquire these firms and operate them in profit-maximizing ways. Jensen (1986) argues that takeovers mitigate manager-shareholder conflicts that are especially severe in firms that generate substantial free cash flow (i.e. cash flows in excess of what is necessary to finance positive net present value projects). Jensen (1986) asserts that managers in such firms often use free cash flow to

finance unprofitable ventures, such as value-reducing acquisitions rather than paying it out to shareholders in either dividends or share repurchase (it is wise to recall that share repurchase is not welcomed in the Republic of South Africa). Therefore, according to Jensen (1986), takeovers are not only a 'problem' (value-reducing) but also a 'solution' (refer Manne's and Marris' argument above) in certain instances. Jensen (1986) argues that many takeovers are designed, at least in part, either to undo previous unprofitable acquisitions, by acquirers or to prevent these firms from making future unprofitable acquisitions.

Mitchell and Lehn (1990) analyze the Goodyear company which was originally a tire and rubber company. Later Goodyear company acquired an oil company. This action by Goodyear company could be thought of as a vertical acquisition because oil is the by-product when rubber is produced. As a result of this acquisition, Goodyear company started experiencing substantial loss in their share price. There was a hostile takeover by Goldsmith. As a result of that hostile takeover by Goldsmith, Goodyear underwent restructuring program which included the sale of a substantial part of an oil subsidiary. Mitchell and Lehn (1990) argue that these results suggest that one source of value in many corporate takeovers, especially in hostile takeovers, is recoupment of target equity value that had been lost because of poor acquisition strategy. According to Mitchell and Lehn (1990), these results support the argument that hostile bust-up takeovers promote economic efficiency by reallocating the target's assets to higher-valued use. Hence, there results support the theories by Manne (1933), Marris (1965) and Jensen (1986) concerning the disciplinary role of corporate takeovers.

CHAPTER THIRTEEN

Prior Mergers and Acquisitions at the Johannesburg Securities Exchange

13.1 Brews in 1987

Corporate growth through mergers and acquisitions is a strategy adopted by many South African companies to achieve their growth objectives. However, research in both the United Kingdom and the United States of America has found that most mergers and acquisitions do not meet expectations. Many fail and some are divested at considerable human and financial cost. Until 1987, little research on the validity of growth through mergers and acquisitions had been made in South Africa. In light of this, in-depth interviews were held with 20 senior South African executives, concerning the practices adopted by their organizations in the execution of mergers and acquisitions. Brews (1987) found that, in 11 cases, the companies represented had formally adopted a growth by acquisition corporate strategy, but no common motive as to why such strategy was adopted.

Fourteen of the twenty respondents had developed a list of criteria that potential targets should meet before being considered for an acquisition. According to Brews (1987), the major criteria in an acquisition profile included:

- **Nature of business/industry.** Most organizations specify that candidates should be either in the same business/industry or a related business/industry before being considered. Most of conglomerates in the sample, it seems, are now only prepared to invest further in

industries/businesses they know. Interestingly enough, none of the sample indicated a desire to acquire unrelated businesses, whilst only two indicated they would consider acquiring unrelated businesses in combination with others.

- **Amount available to be spend on investment.** Of the specific criteria included in the acquisition profile, amount available was accorded the lowest priority.
- **Location of business.** Six respondents indicated that their organizations had included this criterion in their acquisition profiles, while eight indicated their organizations had not. Brews (1987) argues that judging from the responses, it is clear that whether or not geographic location is important depends to a great extent on the spread of operations of the acquirer itself.
- **Management policy.** The responses elicited on management policy highlighted that most organizations had indeed developed a policy in this regard. Most had included these in their acquisition profiles. Three key areas were discovered: management retention, management compatibility, and management compensation/remuneration.
- **Return on investment policy.** Thirteen respondents who indicated their organizations had developed an acquisition profile reported that a stated return on investment policy was included in their profiles. Of these thirteen: six (6) indicated a fixed required rate of return, ranging form 15 – 35% per annum; two (2) respondents reported their policy varied, and was a function of risk; and one (1) respondent indicated his policy depended on the interest rates and cost of funds at the time.
- **Minimum/maximum size of investment criteria.** Ten (10) of the fourteen respondents who indicated their organizations had developed explicit acquisition profiles indicated their profiles contained criteria relating to the minimum/maximum size of investment. "seven (7) of these ten respondents were of one mind: 'no maximum only a minimum' was one way a respondent put it. 'Small companies are a waste of management

> time' was the view of another. Whilst 'smallness' may well be a question of degree and relativity, the majority of respondents agreed on this point which is to not even consider companies which you define as small' (Brews, 1987, 17).

Brews (1987, 18) outline the main reasons for mergers and acquisitions failure originating in the acquiring firm. The main reasons were: unprofessional approach, including insufficient evaluation, transactions undertaken for the wrong reasons; and lack of experience in mergers and acquisitions. Additional reasons included: culture clash and management incompatibility; going outside organisation's area of expertise; and failure to develop appropriate reporting structures.

Surprisingly, Brews (1987) found that most of the respondents considered most of the acquisitions successful, and 70 per cent of the sample indicated that less than 20 per cent of the acquisitions were divested. Thus, the managerial perception of mergers and acquisitions' activities appears to be largely positive. However, Brews (1987) points out that the surprising results of this study could be due to sample bias to the fact that most acquisitions were horizontal or simply growth through mergers and acquisitions can be a viable and successful strategy.

Unfortunately, the optimistic picture that emerged from Brews' study must be contrasted with the market reaction to mergers and acquisitions. Few studies that examine the effects of mergers and acquisitions on the share prices of bidder and target generally confirm the conclusion that the target firm shareholders register substantial positive abnormal gains, while bidding firm shareholders gains are zero or even negative. Thus, the share market views, at least in the short term, mergers and acquisitions less optimistically than some South African managers.

13.2 Affleck-Graves, Flach and Jacobson in 1998

Asquith (1983) found that positive gains are made by acquiring firms which engage in announced merger programs and that these gains are capitalized at the announcement of such programs. Affleck-Graves et al. (1988) examine the effect of mergers on the share prices' performance of the South African companies listed on the Johannesburg Securities Exchange (JSE). They used the cumulative average residual (CAR) to examine the effect merger announcement have on the returns earned by both the shareholders of the acquiring companies and the acquired companies.

The results indicate that shareholders of the acquired companies earn significant positive abnormal returns in the ten weeks prior to the merger announcements. On the other hand, no evidence is found of positive abnormal returns accruing to the shareholders of the acquiring companies. Results also indicate that shareholders of the acquiring firms earn negative abnormal returns in the year following the merger announcements. They also show evidence of small negative abnormal returns to the shareholders of these companies around the announcement date. However, the negative abnormal returns around the announcement date are not large and therefore Affleck-Graves et al. (1988) conclude that merger announcements, on average, have no effect on the share prices of the acquiring firms. Affleck-Graves et al. (1988) suggest a number of reasons for no effect. The market as a whole might have anticipated that the acquiring firm was likely to be involved in merger activity and this would already have been impounded in the price of the shares. Alternatively, the market might not anticipate the merger, but on the announcement it may assume that it was a zero net present value project (NPV) decision to the acquiring firm thereby leaving the price of the shares unchanged.

Results also indicate that the CARs have a random pattern similar to that of the acquiring companies until approximately 13 weeks to the announcement. Thereafter, highly significant abnormal positive returns are earned by these

shareholders with the CAR plot attaining a maximum value in the week of the announcement. This indicates that the shareholders of the acquired companies earn fairly substantial abnormal returns around the time of the merger announcement. Bhana (1987) argues that insiders appear to take market positions on prospective takeovers approximately 40 trading days before the public announcement. Leakage of inside information occurs at a significant level in the 15 trading days preceding the public announcements of the proposed take-over.

13.3 Van den Honert, Barr, Affleck-Graves and Smale in 1988

Van den Honert et al. (1988) examine, in a cumulative average abnormal return (CAAR) framework, the effect of four easily identifiable features of merger activity on acquirer/target shareholder wealth. It should be noted that the CAAR framework is different to the CAR framework which has been used by Affleck-Graves et al. (1988) above. The features considered here are: (1) the relatedness of the acquiring and target firms involved in the merger; (2) the relative sizes of the acquirer and target; (3) the prior control position; and (4) the medium of exchange. Brews (1987) cites the nature of the business of the target firm relative to that of the acquiring firm as perhaps the most important characteristic in the profile of a prospective target firm. He finds that firms that branch out into unrelated fields are likely to be less successful in the long run since they do not know the business of the prospective target firm. Brews (1987) investigates the size of the target firm as a merger criterion. He suggests that firms with a surplus of cash and a shortage of good investment opportunities often turn to mergers as a way of re-deploying capital. It is also argued that it is usually assumed that, if an acquiring firm already holds a certain percentage in the target company, it is able to perceive the benefits to be had from the purchase of the minority interest.

The results of the study conducted by Van den Honert et al. (1988) indicate that the relatedness of the acquirer and target firm, and the prior position are strong

factors in determining the distribution of any wealth effects between the shareholders of the target and acquiring firms. Results show the CAAR plot of 25 acquiring firms in the unrelated acquisitions. There is downward trend in the year prior to the unrelated acquisitions. There is a downward trend in the year prior to the unrelated merger. Van den Honert et al. (1988) argue that this indicates worsening investor confidence and expectations on the future cash flows of the firm. After unrelated merger announcement, they found the net CAAR to be negative 14 per cent. A justification for the acquisition of an unrelated asset that is often cited is that of diversification and hence risk-reduction. If this is the motive of acquiring firms, then there is no evidence that the market values this increased diversification. Van den Honert et al. (1988) argue that it is easier and cheaper for the individual shareholder to diversify by buying an unrelated firm's share himself. They also argue that the downward trend in the CAAR could also reflect the anticipated and often overlooked problems in post-merger firms associated with the integration of two unrelated entities into an efficient whole.

Results also show the CAAR plot of the sample of acquiring firms in the related acquisitions. The feature of the plot is that CAAR for the acquiring firms fluctuates in a fairly narrow band throughout the period and there are no major increases or decreases in CAAR. Thus there is evidence that investors in acquiring firms that pursue related acquisitions anticipate this behaviour and expect the benefits almost a year before the actual related merger. Figure 5 and 6 show the CAAR plot of the target firms in a related and unrelated acquisitions, respectively. In both acquisitions, target firms experience positive CAARs around the announcement date. More positive abnormal returns towards target firms are possible when the acquisition was unrelated. When relative size is considered, it was observed that acquirers, on average, lost value by merger regardless of whether the target was small or large. However, the target firms gained in both instances. Identical results were held when the medium of exchange was the variable under consideration—acquiring firms decreased in value and targets increased.

CHAPTER FOURTEEN

Conclusion

The objective of this section was to review empirical evidence on mergers and acquisitions. Chapter 11 reviews foreign studies on mergers and acquisitions, hoping to determine the success (or failure) of mergers and acquisitions in those countries. It is indicated in this chapter that there is a big 'gap' between theory and empirical evidence on mergers and acquisitions. According to empirical evidence, there are positive returns at the time of takeover announcement accruing to the shareholders of the acquired firms, but there is no evidence that the shareholders of the acquiring firms experience any significant abnormal returns during these announcements. In fact, some studies report slightly negative returns for the acquiring firms.

Major criticism of mergers and acquisitions is as a result of post-merger performance. Jensen and Ruback (1983) argued that positive returns at the merger announcement date appear to be cosmetic because significant negative returns are experienced after the takeover. These results are more pessimistic when acquisition was an unrelated one –diversification. The latter is owing to: (1) it is much cheaper to diversify at an investor's level; and (2) management diseconomies of scale.

Chapter 12 looks at the specific potential cause for poor performance of mergers and acquisitions i.e. the agency problem. It is established that managerial objectives drive bad acquisitions. Managers overpay for merger or acquisition that has large private benefits. Also, managers with free cash flow switch to mergers and acquisitions as a way of using surplus funds (that is a problem).

However, mergers and acquisitions may also be a solution as they end up replacing poor management with new (hopefully, good) management.

Chapter 13 reviews South African studies on mergers and acquisitions. It appears that empirical evidence on mergers and acquisitions in South Africa does not differ significantly from the results presented in overseas studies reviewed under chapter 12 above. Affleck-Graves, et al. (1988) conclude that merger announcements, on average, have no effect on the share prices of the acquiring companies and acquired companies earn fairly substantial abnormal returns around the time of the merger announcements. Van den Honert et al. (1988) conclude that there is no evidence that acquiring companies earn positive returns. Overall, there is no evidence that mergers and acquisitions 'pay' South African shareholders large dividends (if any).

Section C

Statistical Analysis

CHAPTER FIFTEEN

A Case Study of Mergers and Acquisitions' Performance at the Johannesburg Securities Exchange

15.1 Introduction

"Mergers and Acquisitions activity is increasing in the world" (Ernst and Young, 2001, 35-36). South Africa is not left behind. Mergers and Acquisitions (M&A) activity in South Africa increased from R12,5 billion in the year 1991 to R293.4 billion in the year 2000 (Ernst and Young, 2001, 4). It appears that South African companies foresee 'huge' synergy as a result of M&A. Theory on M&A states a number of potential sources of synergy (refer section a above). However, empirical evidence has shown that M&A has not always resulted to such 'attractive' synergy in the corporations (refer section b above). One of the ways in which synergy can be measured is by studying the effect of M&A on the share prices of the acquired and acquiring companies and that is the main purpose for this case study. The hypothesis of this case study is as follows:

Mergers and Acquisitions lead to increases in share prices' returns of:

- Anglo American Corporation
- BOE Group, and
- Gold Fields of South Africa.

An obvious question which flows from the hypothesis (mentioned above) is whether the level of any excess return experienced by acquiring firms can be

related to the characteristics of the merger or not. Results shall also indicate the efficiency of the Johannesburg Securities Exchange.

15.2 Importance/Benefits of this Study

Review of related South African studies (in section b above) clearly indicates that there have been M&A studies up until late 1980s. Therefore, there is a clear need to update these studies given:

- The fast pace of M&A activity in South Africa (refer point 15.1 above)
- The poor performance of both the acquired and acquiring companies during the late 1980s (refer section b above).

The need for this case study can be summarised as follows:

- All studies that have been conducted in South Africa were done more than a decade ago (refer section b above). There is no guarantee as to their relevance and usefulness in South Africa today. There have been major changes in the South African economy since late 1980s. This case study shall provide up-to-date information with respect to the merits of mergers and acquisitions in South Africa.
- As a developing country, South Africa and her companies are required to be competitive. This is especially true since South Africa has been re-admitted to the global market and she is therefore competing in the global market. Quite clearly, there is a need to determine whether M&A destroy South African value or not. The task of this case study is to determine whether corporate restructuring (i.e. mergers and acquisitions) unlocks shareholders value or not.
- There have been conflicting views in research studies as to whether M&A lead to improved share price performance (higher share prices) or not. This was the case even during the late 1980s in South Africa (refer section b above). The results of this case study will be unambiguous with respect to the current possible benefits of M&A. This information is very important

given the high amount of shareholders' money that is continuously invested in M&A as of today (refer point 15.1 above).

15.3 Research Design

15.3.1 Sample Selection

This study will use three recent mega deals in mergers and acquisitions, namely: Anglo American Corporation, BOE group and Gold Fields of South Africa. These companies spent R130.3bn in 1998; R18.7bn in 1998; and R11.9bn in 1997, respectively.

15.3.2 Background on Identified Mega Deals (Source: Ernst and Young; 1998, 9-11)

In a move aimed at increasing its global effectiveness and gaining improved access to global capital markets, Anglo American Corporation of South Africa (AAC) announced an extensive restructuring of the group and a merger with Minorco, its overseas commodity wing, to establish Anglo American plc (AA plc), a company which will have its primary listing on the London Stock Exchange. The transfer of AAC's primary listing has received Government's approval.

Aspects of the announced restructuring included:

- Acquiring the minority interests in and delisting Anglo American Coal (Amcoal);
- Acquiring the minority interests in and delisting Anglo American Industrial Corporation (Amic);
- Acquiring the minority interests in and delisting Samancor, leaving this company jointly controlled by AAC and Billiton;
- Rationalization of the interests of AAC and De Beers/Centenary; and
- An expressed intention by AAC to dispose of its shareholding in Bevcon and SA Breweries when market conditions are appropriate, and for Amic to continue to review its interests in AECI

The combined value of the merged entities at the time of the announcement was R71 billion. The transfer of AAC's listing, following closely on the heels of Billiton's similar move in 1997, will have a dramatic effect on the composition of the JSE.

The R59 billion merger of the financial services interests of Anglo American corporation and Rand Merchant Bank Holdings, which included not only banking and assurance, but also asset management, corporate and merchant banking and healthcare, was announced. The principal companies involved were First National Bank Holdings and The Southern Life Association, in which Anglo American Corporation had a substantial interest, and a stake in Southern Healthcare Joint Venture (since sold off); and the interests of Rand Merchant Bank Holdings in Momentum Life Assurers, which included Rand Merchant Bank and Momentum Health (since renamed Discovery Health).In terms of the merger announcement, Momentum Life Assurers was used as the vehicle to acquire First National Bank and Southern Life and simultaneously raised an amount of R5.1 billion through a rights issue. Momentum Life changed its name to FirstRand. The merger created a company with assets of over R250 billion, and heralded the first major financial services group to offer its clients the full range of bank assurance financial products arising from the convergence of insurance, banking and investment services.

The R18.7 billion merger of banking group NBS Boland into the BOE group. The rationalization was a sequel to the 1997 sale of 26.4 per cent of NBS Boland Bank to Orion Selections in a deal valued at R3.84 billion, which had followed the 1996 acquisition by NBS Holdings of the banking and financial services interests of Boland Bank. In 1997 Samgro Investment Holdings acquired an additional interest in NBS Boland from Board of Executors in a deal valued at R1.69 billion, while Orion Selections acquired a 17.1 per cent interest in NBS Holdings from Norwich Holdings for R1.32 billion.

15.3.3 Data Collection Methods

The initial public M&A announcement dates and historical share prices of companies and indices were supplied by Profile Media. Profile Media is a well-known and reliable company in South Africa, which keeps tracks of all share prices of all companies listed at the JSE. It also records all important events about all companies listed at the JSE.

15.3.4 Research Methodology

The methodology used in this study is sourced from the study conducted by Van den Honert et al. (1988). Throughout this study all computations were based on returns rather than on the raw price data. Thus all share prices and indices collected were converted to returns using the following formula:

$$R_{it} = \frac{P_{it} - P_{it-1}}{P_{it-1}} \text{ X } 100$$

Where: P_{it} = price of share i in period t; and

P_{it-1} = price of share I in period t-1.

The returns on the market and the relevant industry (or sector) indexes were computed using the same method.

In order to focus on merger-specific information, the market-wide and sector-wide information must first be removed from the security returns. The mathematical model used here in order to remove market and sector effects is the 2-factor market-industry model used by Halpern (1973) and represents a straightforward extension of the market model used by Fama, Fisher, Jensen and Roll (1969). Although both these models were used in the Affleck-Graves, Flach and Jacobson (1987) study and gave similar results it was decided to use the 2-factor model as it encompasses the simpler market model, and allows for adjustments for both market-wide and industry-specific movements. It can be written as follows:

$R_{it} = \beta_o + \beta_1 R_{mt} + \beta_2 S_{it} + \varepsilon_{it}$

where R_{it} = return on share i in period t;

R_{mt} = return on the market in period t;

S_{it} = return on the sector in which share i is listed in period t;

ε_{it} = stochastic error term, and

β_0, β_1, and β_2 are the regression co-efficients.

The parameters of the model in equation (1) were estimated using ordinary least squares (OLS) regression. For each share the weekly returns for that share is listed for the three years prior to the year preceding the merger. This was done to avoid any biases that might occur in the estimation procedure due to speculation and leakages of information in the year preceding the merger announcement. Having obtained the OLS estimates, the expected returns on the share were calculated for the 365 days prior to and after the announcement date of the merger by substituting the actual market return in each day into equation (1). This yields:

$E(R_{it}) = \beta'_0 + \beta'_1 R_{mt} + \beta'_2 S_{it} + \varepsilon_{it}$

Where: β'_0, β'_1 and β'_2 are the ordinary least squares estimates of β_0, β_1, and β_2, respectively.

The difference between the actual return observed for any share i in period t and the expected value of the return as calculated in equation (2) above represents that part of the return unrelated to the market or the sector. This is commonly known as the abnormal return for share i in day t (ARit). Thus :

$AR_{it} = R_{it} - E(R_{it})$.

The abnormal returns (AR_{it}, i = 1....3, t = 1.....539) were calculated for each of the acquiring and/or acquired firms for the 539 days in the prediction period. That is a year prior to the merger announcement and a year after the initial merger announcement. With respect to Anglo American Corporation, the period of estimation ended at the merger announcement data due to insufficient data.

It may be noted that a downward bias may be exerted on the AR's for mergers of firms operating in a market sector which is dominated by the market capitalization of that firm. In this case the sector index would tend to reflect merger-related information rather than the fundamentals of that particular industry, and thus the abnormal returns would be reduced for that merger. In such a case the actual merger gains would tend to be slightly higher than those presented here. This is especially true when a company was involved in more than one mergers and acquisitions over the same study period.

The daily abnormal returns for BOE group and Gold Fields of South Africa were then aligned according to their announcement dates and averaged over the entire sample for each day during the 539-day prediction period and cumulated from a year prior to the announcement through to a year after the announcement for these two acquiring firms. The cumulated average abnormal return (CAAR) for a sample of *N* firms in day *d* relative to the merger announcement (*d*-th day in 'announcement time') may then be computed as follows:

$$CAAR_p = \sum_{t=-269}^{p} \left(\sum_{i=1}^{N} ARit / N\right)$$

In an efficient capital market, the AR and CAAR plots should follow a random walk with an expected value of 0. The trend in the CAAR should reflect the reaction of the market to newly available information that has a bearing on the value of the firm (that is, the effect of mergers and acquisitions).

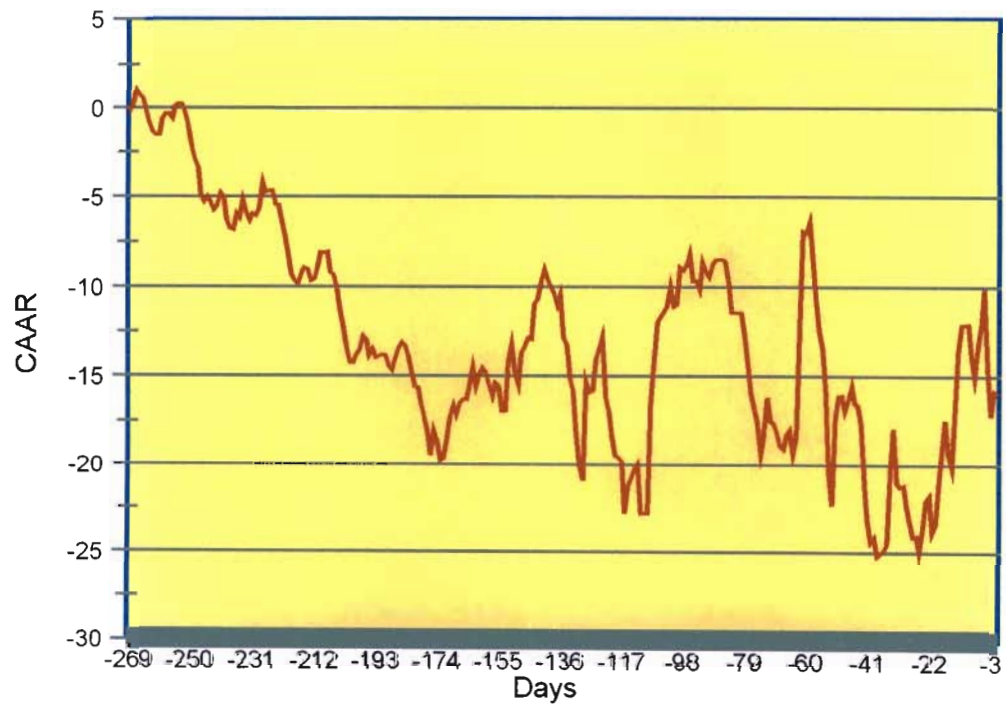
15.4 Results

Results of this case study are presented in the form of a graph. Firstly, regression co-efficients (refer appendix a) were computed as outlined in the research methodology (refer point 15.3.4). Regression co-efficients were then used to forecast share prices' returns (refer appendix b) and then, abnormal returns were computed and cumulated according to the research methodology (refer point 15.3.4 again).

15.4.1 Anglo American Corporation

Figure 1 (below) presents results for the behaviour of the daily and cumulative abnormal returns of Anglo American Corporation (AAC) around the initial merger announcement day (day numbered 0 on the graph), which is the 24th of April 1998.

Figure 1: CAAR for Anglo American Corp



The CAAR plot for AAC exhibits a downward trend in the year prior to the merger. This indicates worsening investor confidence and expectations on the future cash flows of the firm. This downward trend in the CAAR of AAC indicates that there was no need for AAC to merge with Minorco to form Anglo American plc. In other ways, it was a negative net present value project. Anglo American Corporation was a value destroyer. Since this was a related merger, results are contradictory with theory which states that related acquisitions are likely to yield positive results. After all, it may be easier and cheaper for the shareholders of AAC to buy shares of Minorco themselves. Furthermore, the downward trend in the CAAR could also reflect the anticipated and often over-looked problems in post-merger firms associated with the integration of two entities into an efficient whole even if there were related.

However, there is some upward revision towards the end of the study period. This trend is revised around the merger announcement as the CAAR for AAC increased from approximately negative 25 per cent (that is 30 days before the merger announcement) to approximately negative 10 per cent (that is 4 days before the merger announcement). This is a very sharp increase. One could argue that the merger announcement was already factored into the share prices and that is why CAAR are no longer going down towards the end of the case study period. Some critics could argue that shareholders are starting to understand and accept the merger as they eventually anticipate synergies in a merger. The positive CAARs exhibited at the end could be a reflection of the market's perception of the benefits accruing from market concentration and the characteristics of monopoly power associated with related merger or acquisition (M&A).

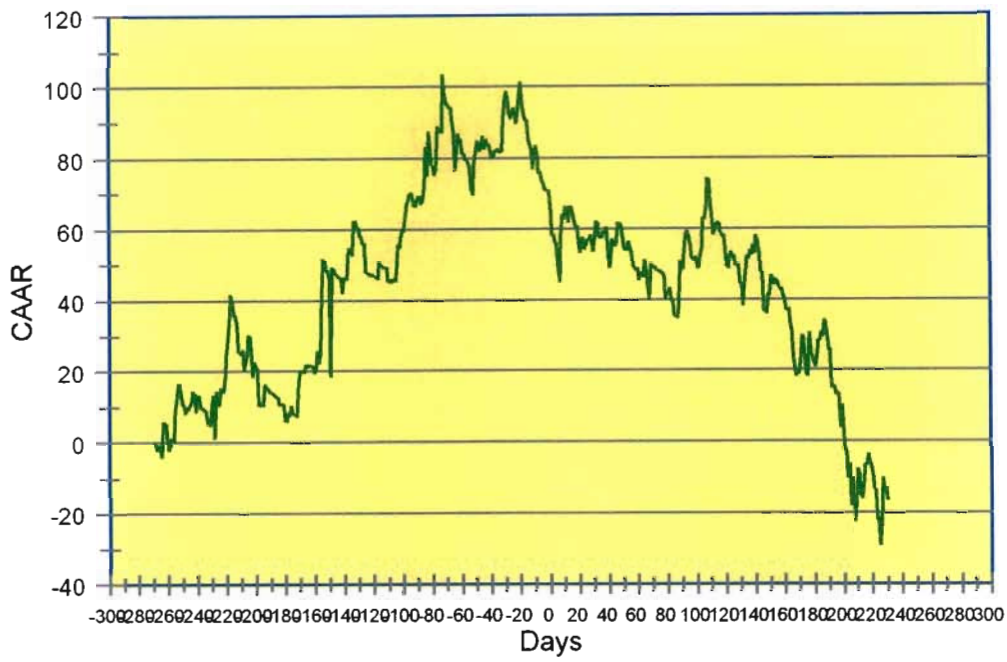
The feature of the plot is that the CAAR for the AAC fluctuates in a very wide band throughout the period, as there are major increases and decreases. This symbolizes high volatility and the efficiency of the Johannesburg Securities

Exchange (JSE) as the share prices of AAC appear to quickly reflect new and available information.

15.4.2 BOE Group

Figure 2 (below) presents results for the behaviour of the daily and cumulative abnormal returns of BOE Group (BOE) around the initial merger announcement day (day numbered 0 on the graph), which is the 31st of March 1998.

Figure 2: CAAR for BoE Group



Examination of this figure indicates that the CAAR for the BOE exhibits a very sharp upward trend up until approximately seven months before the merger announcement. This indicates that shareholders of BOE earn positive abnormal returns in the early part of the year following the merger announcement. This indicates strengthening investor confidence and expectations on the future cash flows of BOE. Thus there is evidence that investors in BOE anticipate this behaviour and expect the benefits almost seven months before the merger

announcement. The positive CAARs exhibited by the sample could be a reflection of the market's perception of the benefits accruing from market concentration and the characteristics of monopoly power associated with it.

Of particular interest is the seven-month period preceding the merger announcement. There is some downward revision subsequent to the announcement. CAAR for BOE drop from approximately 105 per cent (that is seven months before the announcement) to approximately 45 per cent at the merger announcement date. The CAAR continues to drop after the merger and reaches zero (that is ten months after the merger announcement). Then CAAR again continues to drop and there are approximately negative 30 per cent eleven months after the merger announcement. These results suggest that the initial positive trend exhibited could be an over-reaction by shareholders due to highly anticipated synergies in merger, especially from related mergers. More importantly, the downward trend in the CAAR could also reflect the anticipated and often over-looked difficulties in post-merger firms associated the integration of firms into an efficient whole.

However, the negative abnormal returns around the merger announcement date are not large and therefore it is concluded that merger announcement, on average, has no effect on the share price of BOE. This in turn implies that such announcement has no information content for the market. This could arise for a number of valid reasons. For example, the market as a whole might have anticipated that BOE was likely to be involved in merger activity and this would already be impounded in the share price of BOE before the merger announcement date. It could be argued that an announcement of the merger would merely confirm what the market had already anticipated and hence the announcement per se has no informational value to the market. This is especially true since the CAAR plot for BOE exhibited a sharp upward trend at the beginning of the year prior the merger announcement. It could, therefore, be implied that the JSE is efficient.

15.4.3 Gold Fields of South Africa

Figure 3 (below) presents results for the behaviour of the daily and cumulative abnormal returns of Gold Fields of South Africa (GFSA) around the initial merger announcement day (day numbered 0 on the graph), which is the 10th of October 1997.

Figure 3: CAAR for Gold Fields of SA

The CAAR plot exhibits positive but declining CAAR for Gold Fields of South Africa (GFSA) approximately ten months preceding the merger announcement. These positive CAAR were very temporary. This fact is supported by the behaviour of CAAR for GFSA during the ten-month period before the merger announcement. CAAR for GFSA has a steady decline from almost zero per cent to approximately negative 35 per cent at the merger announcement date. It could

be argued that shareholders view the merger of gold interests of GFSA and Driefontein Consolidated Mines, and the merger of gold interests of GFSA and Gencor as a negative net present value projects. In contrary to the synergies expected from mergers especially when they are related, investors' confidence and expectations are continuously pessimistic. Shareholders of GFSA experience negative abnormal returns for the entire period.

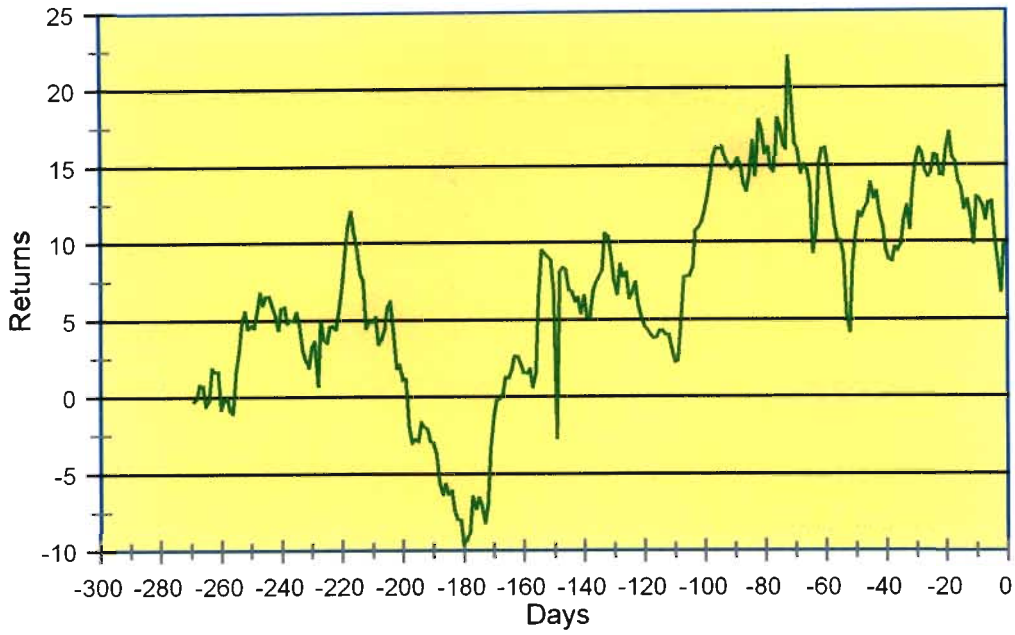
The situation at GFSA becomes even worse after the initial merger announcement date. The CAAR plot exhibits negative abnormal returns declining at an increasing rate. There are clearly post-merger problems when trying to integration two separate entities into one. The sharp decline in the CAAR for GFSA started around the merger announcement date. This indicates that the merger announcement had an information content feature and shareholders are very unhappy about the merger. Possible reason for this response could be, among others, that shareholders are aware that they can maximize their wealth themselves by buying shares of related company (homemade wealth maximization). There was no need for management to provide this service to shareholders because shareholders can do exactly what they are trying to do for them but at a very low cost.

15.4.4 AAC, BOE and GFSA together

Figure 4 (below) presents results for the behaviour of the average daily and cumulative abnormal returns of Anglo American Corporation, BoE Group and Gold Fields of South Africa around the aligned merger announcement dates.

The CAAR plot of the combined three firms is, on average, positive. During the first two months, CAAR are positive and constant. They decrease during the third month and then started increasing again during the four month and reached maturity of approximately 21 per cent (that is approximately four months before the merger announcement. This indicates that shareholders of these merging companies value mergers as a value-creating activity. They expect synergistic

Figure 4: CAAR for All Companies above (Combined)



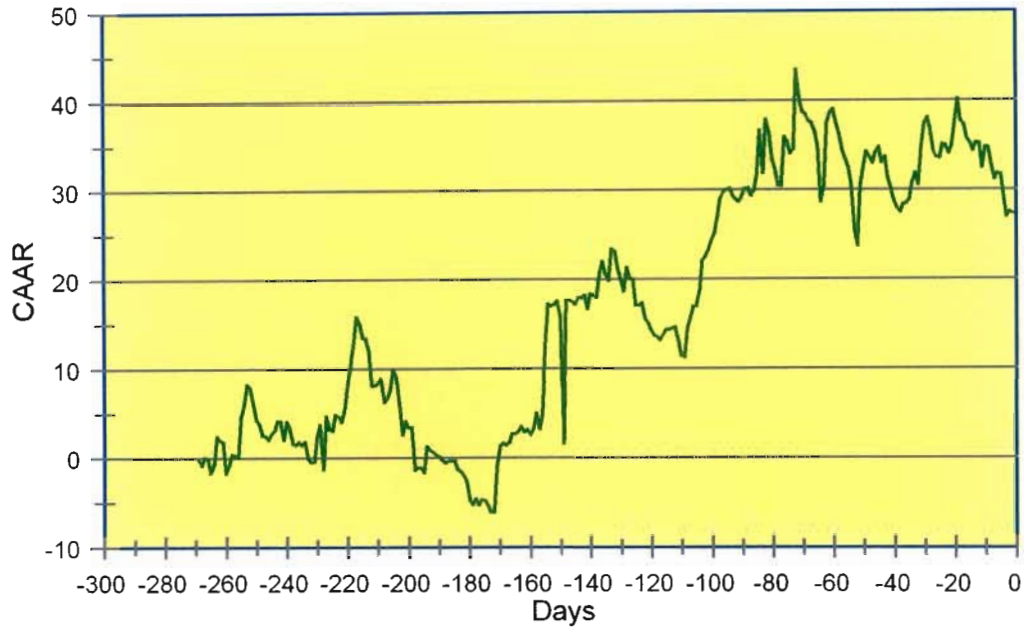
benefits as a result of combining their companies with other related firms. This is line with theory which suggest that mergers create value especially when related. Possible source of synergy may include, among others, managerial economies of scale because all these three mergers were related ones.

What is more interesting about these results is the fact that CAAR plot is positive and constant towards the merger announcement date. This symbolizes that the investor confidence and expectations are continuously optimistic. The CAAR plot around the merger announcement is constant and it is not affected by the actual merger announcements and this indicates that the merger has already been incorporated into the share prices of these firms. This demonstrates the efficiency of the Johannesburg Securities Exchange (JSE).

15.4.5 Anglo American Corporation and BOE Group

Figure 5 (below) presents results for the behaviour of the average daily and cumulative abnormal returns of Anglo American Corporation and BoE Group around the aligned merger announcement dates.

Figure 5: CAAR for Anglo America Corporation and BoE Group

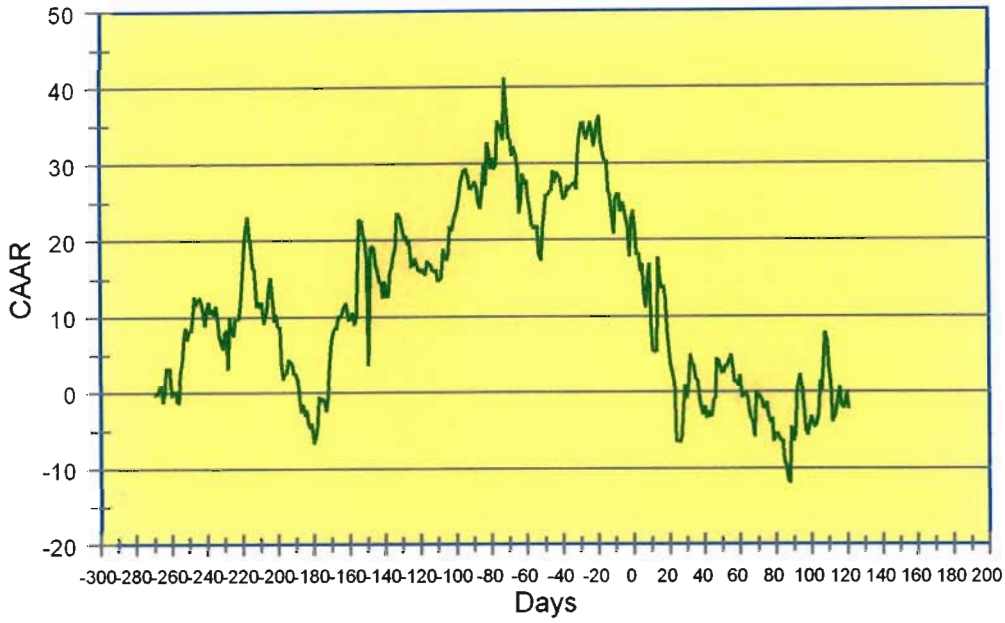


The above CAAR plot is similar to the one of all combined firms. This indicates that results, under point 15.4.5 above are correct. Even if one excludes the effect of Gold Fields of South Africa on combined results, these findings are consistent with theory and the above-mentioned findings as well. That is investors view mergers as a source of value, especially when related and these synergies are expected approximately nine months before the merger announcement date.

15.4.6 Gold Fields of South Africa and BOE Group

Figure 6 (below) presents results for the behaviour of the average daily and cumulative abnormal returns of Gold Fields of South Africa and BoE Group around the aligned merger announcement dates.

Figure 6: CAAR for Gold Fields of SA and BoE Group



When the effect of Anglo American Corporation's abnormal returns is excluded from the average abnormal returns, the results are still consistent with prior findings i.e. shareholders value mergers as positive net present value projects. However, these results are important because the CAAR plot also indicates the performance of these firms after the merger i.e. post–merger performance. After the merger announcement, the CAAR plot fluctuates around the value of zero and that could be interpreted as follows: the merger is not creating any value as expected but it is also not causing the merged firms to loose any value. In other words, there are no winners nor losers. The merger can, therefore, be regarded as a zero net present value project as they break-even. This is contradictory with

suggested literature (refer chapter 3 above) which hypothesise 'huge' benefits after the merger or acquisition.

The above-mentioned results are indicating an element of the agency problem. It is also suggested in literature that managers engage themselves in mergers and acquisitions in order increase the size of the firms, not to maximize shareholders value. Nevertheless, this kind of agency cost only resulted in indirect agency cost (opportunity cost –lost in potential revenues) not direct agency cost (lost in actual revenues). Firms tend to increase their size in order to shield themselves from being 'easy' takeover targets and that leads to agency problem.

15.4.7 Anglo American Corporation and Gold Fields

Figure 7 (below) presents results for the behaviour of the average daily and cumulative abnormal returns of Anglo American Corporation and Gold Fields of South Africa around the aligned merger announcement dates.

Results of this CAAR plot are very interesting as they demonstrate the extent to which BoE Group's abnormal returns have influenced the average daily and cumulative returns of all other mergers. The average abnormal returns of these two firms have been negative and decreasing eleven months before the merger announcement. This indicates that shareholders of Anglo American Corporation and Gold Fields of South Africa do not foresee any synergies that could be earned by their respective firms simply by merging with other firms, even though they are related firms. CAAR plot indicates that the performance of these two firms is negative and remains significantly negative around the merger announcement date. They are no ups and downs around the merger announcement date. This shows that 'negative' information about the merger has

Figure 7: CAAR for Anglo American Corporation and Gold Filelds

already factored into share prices months preceding the merger announcement. In other words, the merger announcement itself has no informational content (no signalling effect).

15.5 Summary and Conclusions

Results of the Anglo American Corporation (AAC) show negative abnormal returns over the entire pre-merger announcement period. This indicates that shareholders of AAC are not in 'agreement' with the merger as they see no value in it. Shareholders of Gold Fields of South Africa are also not happy with the merger. Their abnormal returns are negative and continue to be negative. The situation becomes worse off after the merger announcement because returns become even more negative and volatile. Of interest here are abnormal returns of BoE group. Shareholders experienced positive abnormal returns almost a year before the merger announcement. Around the merger announcement, abnormal returns remained positive but decreasing, indicating negative investors'

expectations and confidence. Eventually, shareholders experienced negative returns approximately eight months after the merger announcement. They continue to be negative.

When looking at the averaged cumulated returns of all three companies, they are positive, six months before the merger announcement. The averaged cumulated returns of Anglo American Corporation and BoE Group are consistent with the latter overall results mentioned above –they are positive six months before the merger and are maintained at that level. The averaged cumulative results of Gold Fields of South Africa and BoE Group are also consistent with the last two results mentioned above –they are positive six months before the merger announcement. However, what is of interest is the post-merger performance of these two firms. Their returns start decreasing few weeks before the merger announcement, and eventually turn negative few weeks after the merger announcement. Averaged results of Anglo American Corporation and Gold Fields of South Africa are negative approximately six months before the merger and continues to be negative. They are worse off after the merger announcement signalling poor post-merger performance.

It could, therefore, be implied that the overall results are negative, months before the merger announcement. However, BoE results are positive in such the way that they are able to distort the combined results. This argument is supported by the fact that BoE's results are negative few weeks after the merger announcement –indicating poor post-merger performance and thus decreasing investors' expectations and confidence. Therefore, mergers and acquisitions of these three companies do not maximize shareholders' returns. This is in direct conflict with theory suggested under section a above and these findings are in line with most studies reviewed under chapter 13 above. Overall, there is no evidence that mergers and acquisitions maximise shareholders' wealth.

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17. APPENDIX A

Regression Results for Anglo American Corporation

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                    Ordinary Least Squares Estimation
*******************************************************************************
 Dependent variable is ANGLORET1
 716 observations used for estimation from    1 to  716
*******************************************************************************
 Regressor              Coefficient       Standard Error         T-Ratio[Prob]
 C                        -.015453            .029287           -.52763[.598]
 MKTRETA                    1.4167            .044911           31.5439[.000]
 MINRETA                  -.032825            .048907           -.67117[.502]
*******************************************************************************
 R-Squared                      .58272   R-Bar-Squared                    .58155
 S.E. of Regression             .78265   F-stat.    F(  2, 713)  497.8372[.000]
 Mean of Dependent Variable    .031670   S.D. of Dependent Variable      1.2099
 Residual Sum of Squares      436.7445   Equation Log-likelihood       -838.9892
 Akaike Info. Criterion      -841.9892   Schwarz Bayesian Criterion    -848.8498
 DW-statistic                   1.6614
*******************************************************************************


                              Diagnostic Tests
*******************************************************************************
*    Test Statistics  *        LM Version        *          F Version          *
*******************************************************************************
*                     *                          *                             *
* A:Serial Correlation*CHSQ(   1)=  20.4601[.000]*F(   1, 712)=  20.9443[.000]*
*                     *                          *                             *
* B:Functional Form   *CHSQ(   1)=   6.0593[.014]*F(   1, 712)=   6.0769[.014]*
*                     *                          *                             *
* C:Normality         *CHSQ(   2)=  78.1529[.000]*       Not applicable        *
*                     *                          *                             *
* D:Heteroscedasticity*CHSQ(   1)=  43.5074[.000]*F(   1, 714)=  46.1927[.000]*
*                     *                          *                             *
* E:Predictive Failure*CHSQ( 269)= 871.5343[.000]*F( 269, 713)=   3.2399[.000]*
*                     *                          *                             *
* F:Chow Test         *CHSQ(   3)=   8.9244[.030]*F(   3, 979)=   2.9748[.031]*
*******************************************************************************
   A:Lagrange multiplier test of residual serial correlation
   B:Ramsey's RESET test using the square of the fitted values
   C:Based on a test of skewness and kurtosis of residuals
   D:Based on the regression of squared residuals on squared fitted values
   E:A test of adequacy of predictions (Chow's second test)
   F:Test of stability of the regression coefficients
```

Regression Results of BoE Group

```
                    Ordinary Least Squares Estimation
*******************************************************************************
 Dependent variable is BOERET1
 716 observations used for estimation from    1 to  716
*******************************************************************************
 Regressor              Coefficient       Standard Error         T-Ratio[Prob]
 C                          .37516             .19571             1.9169[.056]
 MKTRETB                   -.26076             .59929            -.43513[.664]
 FINRETB                    .62205             .41564             1.4966[.135]
*******************************************************************************
 R-Squared                 .0074264   R-Bar-Squared                 .0046422
 S.E. of Regression         5.2277   F-stat.    F(  2, 713)     2.6673[.070]
 Mean of Dependent Variable  .38210   S.D. of Dependent Variable      5.2399
 Residual Sum of Squares   19485.6   Equation Log-likelihood        -2198.7
 Akaike Info. Criterion    -2201.7   Schwarz Bayesian Criterion     -2208.6
 DW-statistic               2.0662
*******************************************************************************


                            Diagnostic Tests
*******************************************************************************
*    Test Statistics  *        LM Version        *          F Version          *
*******************************************************************************
*                     *                          *                             *
* A:Serial Correlation*CHSQ(   1)=    .78524[.376]*F(   1, 712)=    .78171[.377]*
*                     *                          *                             *
* B:Functional Form   *CHSQ(   1)=  .018828[.891]*F(   1, 712)=  .018723[.891]*
*                     *                          *                             *
* C:Normality         *CHSQ(   2)= 778811.2[.000]*       Not applicable        *
*                     *                          *                             *
* D:Heteroscedasticity*CHSQ(   1)=    .21641[.642]*F(   1, 714)=    .21587[.642]*
*                     *                          *                             *
* E:Predictive Failure*CHSQ( 500)= 260.2394[.000]*F( 500, 713)=    .52048[1.00]*
*                     *                          *                             *
* F:Chow Test         *CHSQ(   3)=  11.8145[.008]*F(   3,1210)=    3.9382[.008]*
*******************************************************************************
   A:Lagrange multiplier test of residual serial correlation
   B:Ramsey's RESET test using the square of the fitted values
   C:Based on a test of skewness and kurtosis of residuals
   D:Based on the regression of squared residuals on squared fitted values
   E:A test of adequacy of predictions (Chow's second test)
   F:Test of stability of the regression coefficients
```

Regression Results of Gold Fields of South Africa

```
                    Ordinary Least Squares Estimation
*******************************************************************************
 Dependent variable is FIELDSRET
 576 observations used for estimation from    1 to  576
*******************************************************************************
 Regressor              Coefficient       Standard Error         T-Ratio[Prob]
 C                         .014868            .062756             .23693[.813]
 MKTRETF                  -.071957            .078780            -.91339[.361]
 MINRETF                   -.10318             .10187            -1.0128[.312]
*******************************************************************************
 R-Squared                  .0033560   R-Bar-Squared               -.1227E-3
 S.E. of Regression          1.5024    F-stat.    F(  2, 573)     .96472[.382]
 Mean of Dependent Variable  .011212   S.D. of Dependent Variable     1.5023
 Residual Sum of Squares     1293.4    Equation Log-likelihood       -1050.3
 Akaike Info. Criterion     -1053.3    Schwarz Bayesian Criterion    -1059.8
 DW-statistic                1.6988
*******************************************************************************

                              Diagnostic Tests
*******************************************************************************
*    Test Statistics  *        LM Version        *          F Version
*******************************************************************************
*                     *                          *
* A:Serial Correlation*CHSQ(   1)=  12.4560[.000]*F(   1, 572)=  12.6429[.000]
*                     *                          *
* B:Functional Form   *CHSQ(   1)=   .36426[.546]*F(   1, 572)=   .36196[.548]
*                     *                          *
* C:Normality         *CHSQ(   2)= 340.8496[.000]*       Not applicable
*                     *                          *
* D:Heteroscedasticity*CHSQ(   1)=   .64409[.422]*F(   1, 574)=   .64257[.423]
*                     *                          *
* E:Predictive Failure*CHSQ( 391)=   1201.5[.000]*F( 391, 573)=   3.0728[.000]
*                     *                          *
* F:Chow Test         *CHSQ(   3)=   2.5445[.467]*F(   3, 961)=   .84817[.468]
*******************************************************************************
   A:Lagrange multiplier test of residual serial correlation
   B:Ramsey's RESET test using the square of the fitted values
   C:Based on a test of skewness and kurtosis of residuals
   D:Based on the regression of squared residuals on squared fitted values
   E:A test of adequacy of predictions (Chow's second test)
   F:Test of stability of the regression coefficients
```

18. APPENDIX B

Forecasted Returns of Anglo American Corporation

Single Equation Static Forecasts

****

Based on OLS regression of ANGLORET1 on:
C MKTRETA MINRETA,
Where ANGLORET1, c, MKTRETA and MINRETA are Anglo American returns, constant market returns and mineral returns respectively.
716 observations used for estimation from 1 to 716

****

Date	Actual	Prediction	**Excess Returns**	S.D. of Excess Returns
-269	0.45249	0.61486	-0.16237	0.78342
-268	0	-0.42111	0.42111	0.78333
-267	0.72072	-0.03576	0.75648	0.78320
-266	0.62612	0.91176	-0.28564	0.78378
-265	0.17778	0.34633	-0.16856	0.78327
-264	-0.26619	0.50731	-0.77350	0.78334
-263	-0.35587	0.25905	-0.61492	0.78329
-262	-0.35714	0.14462	-0.50177	0.78321
-261	-0.53763	-0.33524	-0.20239	0.78329
-260	0	-0.01267	0.012672	0.78321
-259	1.6216	0.68313	0.93849	0.78348
-258	0.70922	0.46102	0.2482	0.78332
-257	0	-0.01244	0.012436	0.78321
-256	0.088028	0.33631	-0.24828	0.78331
-255	1.4952	0.79597	0.69919	0.78358
-254	0.51993	0.41809	0.10184	0.78329
-253	-1.0345	-1.0195	-0.01499	0.78391
-252	-0.52265	0.023031	-0.54568	0.7832
-251	-0.35026	0.2969	-0.64716	0.78327
-250	-0.96661	0.19685	-1.1635	0.78325
-249	-0.70985	0.042038	-0.75189	0.7832
-248	-0.08937	0.39366	-0.48303	0.78332
-247	-2.3256	-0.82192	-1.5037	0.78367
-246	-1.0073	-0.61062	-0.39671	0.78347
-245	-0.27752	-0.53441	0.25689	0.78342
-244	-0.55659	-0.23381	-0.32278	0.78324
-243	0.00000	0.40103	-0.40103	0.78330
-242	-0.37313	-0.62753	0.25439	0.78350
-241	0.18727	-0.4946	0.68186	0.78338
-240	-0.37383	-0.12325	-0.25059	0.78330
-239	-1.31330	-0.05742	-1.2559	0.78321

-238	-0.95057	-0.49670	-0.45387	0.78338
-237	0.57582	0.66727	-0.09145	0.78346
-236	-0.19084	-1.08260	0.89180	0.78404
-235	0.57361	0.77187	-0.19825	0.78355
-234	1.9962	1.0072	0.98899	0.78381
-233	0.46598	1.1964	-0.73044	0.78409
-232	0.46382	0.89168	-0.42786	0.78368
-231	1.2004	0.82435	0.37602	0.78363
-230	0.54745	0.64515	-0.09771	0.78345
-229	-0.18149	-0.61615	0.43466	0.78347
-228	1.8182	0.39425	1.4239	0.78328
-227	-0.44643	0.11749	-0.56391	0.78322
-226	-0.35874	-0.42825	0.069501	0.78337
-225	0	-0.01755	0.017549	0.78321
-224	-2.3402	-1.5733	-0.76695	0.78485
-223	0.46083	0.49456	-0.03374	0.78335
-222	-1.1009	-0.19396	-0.90696	0.78324
-221	-0.37106	0.47228	-0.84334	0.78334
-220	-0.09311	1.0015	-1.0946	0.78381
-219	-0.0932	0.91599	-1.0092	0.78371
-218	0	0.3668	-0.3668	0.7833
-217	0.74627	0.9258	-0.17953	0.78373
-216	0.74074	0.1347	0.60605	0.78322
-215	0.45956	0.14915	0.31041	0.78329
-214	-0.09149	-0.01654	-0.07495	0.7832
-213	-0.7326	-0.07283	-0.65977	0.78321
-212	-0.1845	-0.28517	0.10066	0.78327
-211	-0.09242	-0.68849	0.59607	0.78354
-210	-0.55504	-1.4586	0.90355	0.78462
-209	0.27907	0.31366	-0.03459	0.78325
-208	-0.18553	-0.23113	0.045603	0.78325
-207	-0.37175	0.74134	-1.1131	0.78352
-206	0	0.17761	-0.17761	0.78321
-205	-0.18657	0.61825	-0.80482	0.78343
-204	-1.1215	0.17537	-1.2969	0.78321
-203	-0.18904	0.59679	-0.78583	0.78341
-202	-0.94697	0.24832	-1.1953	0.78325
-201	-1.0516	-0.24919	-0.80244	0.78329
-200	0.096618	0.11814	-0.02152	0.7832
-199	0.3861	-0.05875	0.44485	0.78324
-198	0.57692	0.30646	0.27046	0.78326
-197	0.38241	-0.39857	0.78098	0.78333
-196	0.095238	0.30643	-0.2112	0.78326
-195	0	0.87373	-0.87373	0.7837
-194	0	-0.34177	0.34177	0.78332
-193	-0.47574	-0.01786	-0.45788	0.78321
-192	0.28681	0.1922	0.094602	0.78322
-191	-0.47664	-0.54797	0.071325	0.78342

-190	-0.28736	-0.2458	-0.04156	0.78326
-189	0.28818	0.89853	-0.61035	0.78368
-188	0.76628	1.0021	-0.23582	0.78383
-187	1.9011	1.2409	0.66021	0.78414
-186	0.27985	-0.29905	0.5789	0.7833
-185	0	-0.31397	0.31397	0.78328
-184	-0.27907	-0.07302	-0.20605	0.78321
-183	-1.306	-0.79841	-0.50756	0.78365
-182	-1.0397	-0.16606	-0.87364	0.78322
-181	-2.5788	-1.7134	-0.86535	0.78517
-180	-1.5686	-1.521	-0.04762	0.78474
-179	-0.1992	0.67307	-0.87227	0.7835
-178	0	0.76807	-0.76807	0.78355
-177	-0.3992	0.45884	-0.85804	0.78332
-176	-3.507	-2.2025	-1.3045	0.78641
-175	2.3884	0.96868	1.4197	0.78376
-174	-1.0142	-0.40087	-0.61333	0.78333
-173	-0.92213	0.21442	-1.1365	0.78322
-172	-0.10341	-0.22874	0.12533	0.78325
-171	-0.31056	-1.4189	1.1084	0.78455
-170	0.31153	-1.0242	1.3357	0.78391
-169	0.93168	0.33417	0.59751	0.78326
-168	0.30769	0.8632	-0.55551	0.78365
-167	1.0225	0.3514	0.67109	0.78327
-166	1.417	1.1946	0.22236	0.78414
-165	-0.1996	-0.15318	-0.04642	0.78324
-164	0	-0.78176	0.78176	0.78362
-163	0.2	-0.82779	1.0278	0.78368
-162	-3.7924	-2.7111	-1.0813	0.78801
-161	0.62241	-0.07928	0.70168	0.78324
-160	0.51546	0.18283	0.33264	0.78321
-159	-0.92308	-0.66724	-0.25584	0.78351
-158	0.20704	0.89518	-0.68814	0.78368
-157	-0.61983	-0.01657	-0.60327	0.7832
-156	0.4158	-0.31586	0.73166	0.78331
-155	-0.62112	-0.44876	-0.17236	0.78335
-154	-3.3333	-1.9358	-1.3976	0.78568
-153	0	-0.01523	0.01523	0.7832
-152	3.4483	0.7204	2.7279	0.78358
-151	1.25	0.29129	0.95871	0.8312
-150	-1.9547	-0.35643	-1.5983	0.7833
-149	0.10493	0.76387	-0.65894	0.78354
-148	1.8868	0.12229	1.7645	0.78321
-147	1.2346	0.8561	0.37847	0.78365
-146	1.2195	0.77037	0.44914	0.78358
-145	0.40161	0.43511	-0.0335	0.78331
-144	2.4	0.47246	1.9275	0.78333
-143	0.97656	0.66652	0.31004	0.78346

-142	0	-0.94929	0.94929	0.78382
-141	0.48356	-0.23381	0.71737	0.78326
-140	0.63523	1.1366	-0.50133	0.784
-139	-0.38256	0.099562	-0.48212	0.78321
-138	-0.76805	-0.42376	-0.34429	0.78333
-137	0.3096	1.015	-0.70537	0.78382
-136	-0.92593	-1.5263	0.60036	0.78477
-135	-1.7134	0.70664	-2.42	0.78349
-134	1.3471	1.7326	-0.3855	0.78505
-133	-1.251	0.67296	-1.9239	0.78347
-132	-6.8092	-6.241	-0.56822	0.80804
-131	-1.0195	1.479	-2.4986	0.78457
-130	-9.8712	-8.0404	-1.8308	0.82393
-129	-16.6667	-15.8536	-0.81309	0.9311
-128	15.4286	9.7935	5.6351	0.84216
-127	-3.4653	-2.8401	-0.62529	0.78847
-126	6.6667	6.5963	0.070372	0.81045
-125	4.8077	3.0146	1.7931	0.7889
-124	0.91743	0.40532	0.51211	0.78329
-123	1.3636	0.63159	0.73205	0.78345
-122	-4.0359	-0.68436	-3.3515	0.78353
-121	-5.514	-4.7212	-0.79286	0.79755
-120	0.39565	1.7206	-1.325	0.78503
-119	0	1.1623	-1.1623	0.78403
-118	-2.6601	-2.5487	-0.1114	0.78746
-117	-0.91093	-0.62301	-0.28792	0.78347
-116	-6.0266	-3.0446	-2.982	0.78927
-115	2.7174	1.1826	1.5348	0.78406
-114	0.31746	-0.2145	0.53196	0.78324
-113	-0.10549	-0.61164	0.50615	0.78346
-112	0.95037	0.67184	0.27853	0.78346
-111	-3.2427	-0.39156	-2.8511	0.78332
-110	0	-0.01216	0.012159	0.78321
-109	0	-0.01855	0.018552	0.78321
-108	4.8649	-1.3646	6.2295	0.78445
-107	3.0928	0.74174	2.351	0.78353
-106	1	-1.1976	2.1976	0.7842
-105	0.29703	-0.03726	0.33429	0.7832
-104	0.5923	0.36291	0.22939	0.78328
-103	-0.68695	-1.0216	0.33463	0.78391
-102	0.29644	-0.7807	1.0771	0.78362
-101	-3.4483	-2.3525	-1.0957	0.78689
-100	0	-0.10944	0.10944	0.78322
-99	2.1429	0.052898	2.09	0.7832
-98	-1.5984	-1.4428	-0.15557	0.78459
-97	-3.0457	-3.3387	0.29305	0.79045
-96	0.52356	-0.0924	0.61596	0.78325
-95	1.0417	2.5555	-1.5139	0.78728

-94	0	-0.01728	0.017282	0.78321
-93	2.0619	2.5781	-0.51629	0.78736
-92	1.5152	-0.03991	1.5551	0.78321
-91	-3.2836	-2.7482	-0.53536	0.78814
-90	-0.5144	-0.20278	-0.31162	0.78323
-89	2.1717	1.4552	0.71644	0.78457
-88	-0.10121	-0.34088	0.23966	0.78329
-87	0	-0.02014	0.020139	0.78323
-86	0	-0.01692	0.016915	0.7832
-85	0.81054	0.89004	-0.0795	0.78368
-84	-0.20101	0.88488	-1.0859	0.78367
-83	-1.1078	0.74107	-1.8488	0.78353
-82	0	-0.01591	0.015907	0.7832
-81	0	-0.01912	0.019119	0.78322
-80	-0.3055	-0.29173	-0.01377	0.78327
-79	-2.0429	-0.81787	-1.225	0.78366
-78	-3.5454	-1.8808	-1.6646	0.78554
-77	-1.9459	-0.41335	-1.5326	0.78333
-76	-2.4256	-1.5634	-0.86221	0.78485
-75	-10.1695	-9.3323	-0.83723	0.83757
-74	0.62893	2.3849	-1.7559	0.78679
-73	3.875	2.8718	1.0032	0.78836
-72	2.2864	0.10547	2.1809	0.7832
-71	0	1.3197	-1.3197	0.78431
-70	1.5294	1.6741	-0.14468	0.78493
-69	1.2746	1.7486	-0.47395	0.7851
-68	0.6865	1.4691	-0.78259	0.78452
-67	-0.11364	0.054506	-0.16814	0.7832
-66	0.68259	-0.13946	0.82205	0.7833
-65	1.9209	1.6861	0.2348	0.78496
-64	-0.44346	0.85918	-1.3026	0.78364
-63	4.6771	3.6499	1.0271	0.79155
-62	10.1064	3.6468	6.4596	0.79154
-61	5.7971	0.89162	4.9055	0.78376
-60	1.9178	2.0379	-0.12005	0.78578
-59	-0.98566	-1.6375	0.65183	0.78498
-58	-3.6199	-1.3533	-2.2666	0.78443
-57	0.28169	2.2257	-1.944	0.78629
-56	-1.6854	0.19548	-1.8809	0.78323
-55	0	0.94473	-0.94473	0.78375
-54	-2.5714	-0.03763	-2.5338	0.7832
-53	-4.2033	0.30132	-4.5046	0.78325
-52	-2.8571	-1.0138	-1.8433	0.7839
-51	5.5672	0.51488	5.0523	0.78337
-50	1.99	0.83455	1.1555	0.78362
-49	1.3659	1.3371	0.028763	0.7843
-48	0.19249	1.073	-0.88053	0.7839
-47	0.38425	-0.26599	0.65024	0.78326

-46	0.76555	0.02214	0.74341	0.78322
-45	-0.47483	0.46227	-0.9371	0.78332
-44	-0.9542	-0.80541	-0.14879	0.78365
-43	0.67437	1.778	-1.1036	0.78516
-42	-1.0526	2.4968	-3.5495	0.7871
-41	0.096712	2.0068	-1.9101	0.78572
-40	0.19324	1.4009	-1.2077	0.78441
-39	-0.67502	-0.90634	0.23132	0.78376
-38	-2.4272	-1.4093	-1.0179	0.78453
-37	-3.6816	-3.8336	0.152	0.79272
-36	1.343	1.2405	0.10248	0.78416
-35	1.9368	1.518	0.41877	0.78462
-34	5.5	1.1774	4.3226	0.78405
-33	4.7393	2.4327	2.3067	0.78689
-32	-2.7149	0.41708	-3.132	0.7833
-31	-0.18605	0.059521	-0.24557	0.78322
-30	1.5843	1.4973	0.087051	0.78458
-29	-0.91743	0.21671	-1.1341	0.78322
-28	-2.5926	-1.6487	-0.94389	0.78501
-27	-0.19011	0.67131	-0.86142	0.78346
-26	-1.2381	-1.2901	0.052003	0.78433
-25	-1.1572	-0.29304	-0.86415	0.78327
-24	2.439	1.2486	1.1904	0.78415
-23	3.3333	1.629	1.7044	0.78484
-22	0.92166	0.67959	0.24207	0.78348
-21	0.45662	2.5385	-2.0819	0.8325
-20	1.5455	1.0827	0.46278	0.78391
-19	3.3124	0.88619	2.4263	0.78367
-18	4.4194	2.4507	1.9687	0.78695
-17	2.8216	1.2144	1.6072	0.7841
-16	-1.1299	0.88957	-2.0195	0.78373
-15	1.2245	2.0103	-0.78582	0.78571
-14	4.4355	0.73283	3.7027	0.78352
-13	2.3166	-0.60247	2.9191	0.78346
-12	1.2075	-0.23047	1.438	0.78324
-11	0	-0.01899	0.018988	0.78322
-10	0	-0.01667	0.016674	0.7832
-9	0.29828	1.9824	-1.6841	0.78564
-8	1.4126	2.6411	-1.2284	0.78756
-7	1.6862	6.04E-04	1.6856	0.7832
-6	1.0815	-0.12269	1.2042	0.78323
-5	4.8502	2.8185	2.0317	0.78817
-4	-5.7823	-1.3217	-4.4607	0.78437
-3	-2.1661	0.46232	-2.6284	0.78332
-2	0.95941	-0.42578	1.3852	0.78333
-1	-0.5848	-0.48056	-0.10423	0.78338

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Summary statistics for single equation static forecasts

Based on 269 observations from 717 to 985

Mean Prediction Errors -.059172 Mean Sum Abs Pred Errors .96058

Sum Squares Pred Errors 2.0276 Root Mean Sumsq Pred Errors 1.4239

Predictive failure test F(269, 713)= 3.2399[.000]

Structural stability test F(3, 979)= 2.9748[.031]

Forecasted Returns of BoE Group

Single Equation Static Forecasts

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Based on OLS regression of BOERET1 on:
C MKTRETB FINRETB
Where BOERET1, c, MKTRETB and FINRETB are BoE returns, constant, market returns and financial sector returns, respectively.
716 observations used for estimation from 1 to 716

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Date	Actual	Prediction	**Excess Returns**	S.D. of Excess Returns
-269	-1.5625	0.64546	-2.208	5.2349
-268	0	0.37516	-0.37516	5.2314
-267	-1.5873	0.27178	-1.8591	5.2316
-266	0	0.268	-0.268	5.2318
-265	-7.2581	0.4855	-7.7436	5.238
-264	0	0.6901	-0.6901	5.2334
-263	0	0.37516	-0.37516	5.2314
-262	0	0.37516	-0.37516	5.2314
-261	0	-0.3269	0.3269	5.265
-260	0	0.28901	-0.28901	5.2339
-259	0	0.10529	-0.10529	5.2343
-258	0	0.35736	-0.35736	5.2363
-257	0	0.56171	-0.56171	5.2393
-256	4.3478	0.25048	4.0973	5.2338
-255	0	0.52526	-0.52526	5.2321
-254	0	0.5582	-0.5582	5.2334
-253	0	0.35592	-0.35592	5.2335
-252	0	-0.13377	0.13377	5.2374
-251	0	0.33466	-0.33466	5.2357
-250	-3.3333	-0.02567	-3.3077	5.2347
-249	0	0.43973	-0.43973	5.2317
-248	0.86207	0.80331	0.058757	5.235
-247	0	0.38355	-0.38355	5.2324
-246	0.8547	0.43666	0.41804	5.2329
-245	0	0.316	-0.316	5.2326
-244	3.3898	0.1358	3.254	5.235
-243	6.5574	0.16324	6.3941	5.2322
-242	0	0.37516	-0.37516	5.2314
-241	3.0769	0.52563	2.5513	5.2336
-240	2.2388	0.40744	1.8314	5.2329
-239	0	0.37516	-0.37516	5.2314
-238	3.6496	0.076642	3.573	5.2393
-237	4.2254	0.58727	3.6381	5.2341
-236	1.3514	0.56505	0.7863	5.2321

-235	2	0.037456	1.9625	5.236
-234	0.65359	0.36788	0.28572	5.2314
-233	-0.64935	0.40718	-1.0565	5.2319
-232	-1.9608	0.538	-2.4988	5.2319
-231	0	0.21455	-0.21455	5.2326
-230	1.3333	0.11892	1.2144	5.2387
-229	1.3158	0.034152	1.2816	5.2344
-228	0	-0.02404	0.02404	5.2343
-227	-1.2987	0.50067	-1.7994	5.2372
-226	1.3158	0.23199	1.0838	5.2318
-225	3.8961	0.48978	3.4063	5.232
-224	11.25	0.2822	10.9678	5.2341
-223	-7.3034	0.33298	-7.6364	5.2334
-222	12.1212	0.21683	11.9044	5.232
-221	-2.7027	0.41337	-3.1161	5.2316
-220	-5.5556	0.25575	-5.8113	5.2327
-219	-0.58824	0.47339	-1.0616	5.2339
-218	-1.7751	0.23164	-2.0068	5.2392
-217	1.8072	0.71044	1.0968	5.2338
-216	12.426	0.77852	11.6475	5.2354
-215	0	0.50927	-0.50927	5.2409
-214	-0.52632	0.49554	-1.0219	5.2362
-213	0.5291	0.75473	-0.22562	5.2343
-212	15.7895	0.29042	15.4991	5.2373
-211	-5.4545	0.045527	-5.5001	5.2335
-210	-1.9231	0.75839	-2.6815	5.2344
-209	0	0.11875	-0.11875	5.2352
-208	-0.98039	-0.38125	-0.59914	5.2474
-207	0	0.37516	-0.37516	5.2314
-206	-3.4653	-1.145	-2.3204	5.2794
-205	-2.5641	1.5555	-4.1196	5.275
-204	-10.5263	0.35404	10.8804	5.2317
-203	2.9412	0.31541	2.6258	5.2345
-202	7.4286	0.34103	7.0875	5.242
-201	-2.1277	0.43277	-2.5604	5.2379
-200	1.087	0.30405	0.78291	5.2336
-199	-3.2258	0.59758	-3.8234	5.2353
-198	0	0.61194	-0.61194	5.233
-197	-1.1111	0.38118	-1.4923	5.2315
-196	0	0.051215	0.051215	5.2356
-195	-1.1236	-0.09897	-1.0246	5.2398
-194	-1.1364	0.042755	-1.1791	5.2339
-193	-5.7471	0.12982	-5.8769	5.2335
-192	-1.8293	-0.51822	-1.311	5.2459
-191	8.0745	-0.12646	8.201	5.2477
-190	3.4483	-0.15644	3.6047	5.24
-189	3.3333	0.46788	2.8655	5.2348
-188	0	0.50704	-0.50704	5.2317

-187	-1.6129	0.43296	-2.0459	5.234
-186	1.6393	0.038558	1.6008	5.2382
-185	2.1505	0.11886	2.0317	5.2422
-184	-3.1579	0.046496	-3.2044	5.239
-183	2.1739	-0.32875	2.5027	5.2475
-182	-1.0638	0.17197	-1.2358	5.2339
-181	0	0.35775	-0.35775	5.2314
-180	-1.6129	0.21775	-1.8307	5.2347
-179	-1.6393	-0.01982	-1.6195	5.2347
-178	0	-0.1366	0.1366	5.2481
-177	1.6667	0.136	1.5307	5.2476
-176	0	-0.0962	0.096196	5.237
-175	0.54645	0.015642	0.53081	5.2366
-174	0	0.85817	-0.85817	5.2389
-173	0	.080746	- 0.080746	5.2331
-172	1.087	0.84514	0.24181	5.2452
-171	8.6022	0.46543	8.1367	5.2368
-170	5.9406	0.46116	5.4794	5.2386
-169	2.8037	0.77175	2.032	5.2376
-168	-0.90909	0.60653	-1.5156	5.2368
-167	-3.6697	0.87876	-4.5485	5.2484
-166	-0.95238	0.40168	-1.3541	5.2316
-165	0.96154	0.26053	0.70101	5.2357
-164	1.9048	0.07758	1.8272	5.2338
-163	-1.8692	-0.08154	-1.7876	5.2452
-162	-1.9048	-0.1011	-1.8037	5.2417
-161	3.8835	0.55761	3.3259	5.2333
-160	5.6075	0.58908	5.0184	5.2338
-159	2.6549	0.26265	2.3922	5.2354
-158	-6.8966	-0.41704	-6.4795	5.252
-157	-1.8519	0.82823	-2.6801	5.2355
-156	-0.9434	0.10253	-1.0459	5.2328
-155	0	0.56838	-0.56838	5.2321
-154	-4.7619	0.57326	-5.3352	5.2351
-153	-1	0.047756	-1.0478	5.2417
-152	-1.0101	0.67047	-1.6806	5.2554
-151	-5.102	0.479	-5.581	5.2318
-150	4.8387	0.44913	4.3896	5.2366
-149	2.0513	0.65072	1.4006	5.2328
-148	-2.0101	0.70911	-2.7192	5.2375
-147	-4.6154	0.40808	-5.0235	5.2319
-146	0.53763	.60701	- 0.069377	5.2458
-145	-1.6043	0.73009	-2.3344	5.253
-144	-0.54348	-0.3937	-0.14978	5.2647
-143	-1.6393	0.32739	-1.9667	5.2314
-142	0	0.43947	-0.43947	5.2315
-141	0	0.21022	-0.21022	5.2337
-140	0	0.24096	-0.24096	5.2435

-139	-5.5556	0.19013	-5.7457	5.2327
-138	-5.8824	0.76698	-6.6493	5.2429
-137	0	0.13627	-0.13627	5.2325
-136	-2.5	-0.79778	-1.7022	5.2564
-135	0	0.37516	-0.37516	5.2314
-134	-6.4103	0.93876	-7.349	5.2373
-133	-2.7397	1.0114	-3.7511	5.2468
-132	12.6761	0.34453	12.3315	5.2324
-131	6.25	0.33327	5.9167	5.2379
-130	0	1.0009	-1.0009	5.246
-129	3.5294	0.64116	2.8882	5.2343
-128	0	0.69535	-0.69535	5.2337
-127	-3.4091	0.30028	-3.7094	5.2343
-126	4.7059	0.78015	3.9257	5.2346
-125	0	0.2986	-0.2986	5.2373
-124	-2.2472	-0.54936	-1.6978	5.2493
-123	-1.1494	0.55628	-1.7057	5.2348
-122	-1.1628	0.82719	-1.99	5.2365
-121	0	0.19755	-0.19755	5.2333
-120	-2.9412	0.1535	-3.0947	5.2324
-119	-3.6364	0.48344	-4.1198	5.2383
-118	3.7736	0.10036	3.6732	5.2449
-117	0	-0.21506	0.21506	5.2637
-116	-2.4242	0.62294	-3.0472	5.2497
-115	0.62112	-0.57363	1.1947	5.2934
-114	0	-2.2135	2.2135	5.3959
-113	0	-0.30318	0.30318	5.3029
-112	-1.2346	-3.8129	2.5783	5.5569
-111	-3.75	-4.9438	1.1938	6.2003
-110	-0.25974	4.6562	-4.916	5.6326
-109	4.1667	-0.20781	4.3745	5.2745
-108	6.25	3.8486	2.4014	5.4537
-107	0	0.75264	-0.75264	5.2905
-106	-2.9412	0.5111	-3.4523	5.232
-105	0	0.76782	-0.76782	5.234
-104	0	-0.35522	0.35522	5.2431
-103	0	-2.2109	2.2109	5.3545
-102	0	0.59073	-0.59073	5.2504
-101	1.8182	0.59688	1.2213	5.2384
-100	-4.7619	-0.51692	-4.245	5.259
-99	-6.25	-0.02089	-6.2291	5.2343
-98	1.3333	-1.9514	3.2847	5.3318
-97	5.2632	0.54857	4.7146	5.2397
-96	-0.125	0.30283	-0.42783	5.2316
-95	-1.1264	-0.18028	-0.94613	5.2376
-94	1.2658	0.88794	0.37788	5.2362
-93	5	-0.84313	5.8431	5.2808
-92	0	0.37516	-0.37516	5.2314

-91	0	0.37516	-0.37516	5.2314
-90	-1.7857	1.2473	-3.033	5.3196
-89	-3.0303	0.52219	-3.5525	5.2341
-88	0	0.53692	-0.53692	5.2531
-87	0	0.14853	-0.14853	5.2332
-86	2.5	0.73522	1.7648	5.2341
-85	-1.2195	-0.23942	-0.98009	5.2383
-84	-1.2346	0.53815	-1.7727	5.2429
-83	-3.125	0.46015	-3.5852	5.2929
-82	0	0.63748	-0.63748	5.2354
-81	0	0.8513	-0.8513	5.2404
-80	0	-0.48673	0.48673	5.245
-79	-3.2258	-0.83191	-2.3939	5.2783
-78	2	0.48082	1.5192	5.2323
-77	0	0.88344	-0.88344	5.2655
-76	0	0.37516	-0.37516	5.2314
-75	4.5752	0.71593	3.8592	5.2736
-74	-2.5	0.64867	-3.1487	5.235
-73	-3.8462	-0.08261	-3.7635	5.2764
-72	-3.3333	0.34156	-3.6749	5.2317
-71	10.3448	1.2392	9.1056	5.2446
-70	0	0.27878	-0.27878	5.232
-69	0	0.37516	-0.37516	5.2314
-68	0	0.37516	-0.37516	5.2314
-67	0	0.77858	-0.77858	5.2347
-66	0	0.26467	-0.26467	5.2423
-65	0	0.35747	-0.35747	5.237
-64	0	0.37516	-0.37516	5.2314
-63	0	0.37516	-0.37516	5.2314
-62	0	1.0445	-1.0445	5.2577
-61	-6.25	-0.12297	-6.127	5.236
-60	0.66667	-1.095	1.7616	5.2721
-59	0	-0.59962	0.59962	5.2608
-58	0.66225	-0.60334	1.2656	5.2488
-57	-4.6053	-2.6395	-1.9658	5.5905
-56	-0.68966	0.07332	-0.76298	5.3127
-55	-2.7778	1.0439	-3.8217	5.2709
-54	0	0.50303	-0.50303	5.2318
-53	0	0.61578	-0.61578	5.2408
-52	2.8571	0.56005	2.2971	5.2503
-51	13.1944	0.59143	12.603	5.2512
-50	-1.8405	0.17507	-2.0156	5.2629
-49	0.625	.65461	- 0.029614	5.2343
-48	5.5901	0.56634	5.0237	5.234
-47	5.2941	0.77505	4.5191	5.2447
-46	0.55866	0.14221	0.41645	5.2469
-45	0	2.058	-2.058	5.2906
-44	0	3.3215	-3.3215	5.3942

-43	-2.2222	1.7977	-4.0199	5.2856
-42	0	1.1019	-1.1019	5.2481
-41	0	0.13058	-0.13058	5.2484
-40	0	-0.96887	0.96887	5.2696
-39	-2.2727	0.82696	-3.0997	5.2569
-38	0	-0.35712	0.35712	5.2588
-37	2.907	-0.22247	3.1295	5.2725
-36	1.6949	-0.33718	2.0321	5.2519
-35	7.7778	-0.74847	8.5262	5.2959
-34	0	-0.16738	0.16738	5.2371
-33	4.6392	1.9608	2.6783	5.3153
-32	8.3744	0.48257	7.8918	5.2357
-31	0	0.45468	-0.45468	5.2455
-30	-7.2727	0.1964	-7.4691	5.2497
-29	-1.9608	0.23586	-2.1966	5.2318
-28	-5	0.85928	-5.8593	5.2411
-27	1.0526	-0.04913	1.1018	5.247
-26	1.5625	0.062455	1.5	5.2343
-25	0	-0.58122	0.58122	5.3526
-24	-0.82051	-0.10983	-0.71068	5.3389
-23	-1.758	0.74601	-2.504	5.2532
-22	0	1.0355	-1.0355	5.2401
-21	0	0.10661	-0.10661	5.2352
-20	-3.1579	-0.50034	-2.6576	5.2453
-19	-5.4348	-0.28564	-5.1491	5.3166
-18	0.11494	1.05	-0.93503	5.2396
-17	3.9036	0.97509	2.9285	5.2407
-16	2.2099	1.8294	0.38055	5.2815
-15	-1.0811	0.40698	-1.4881	5.2864
-14	0	-0.20495	0.20495	5.2547
-13	-1.6393	0.86493	-2.5043	5.2408
-12	0	0.39447	-0.39447	5.2521
-11	0	-0.10207	0.10207	5.2446
-10	-5.5556	-0.79647	-4.7591	5.2565
-9	0	0.68556	-0.68556	5.2333
-8	-5.8824	-0.60592	-5.2764	5.2494
-7	6.25	-0.18255	6.4325	5.2403
-6	5.8824	1.6731	4.2093	5.2678
-5	2.7778	0.69381	2.084	5.2452
-4	0	0.24681	-0.24681	5.2391
-3	2.7027	1.4936	1.2091	5.2566
-2	0	1.1525	-1.1525	5.2423
-1	3.1579	1.1112	2.0467	5.2418
0	-1.0204	1.526	-2.5464	5.2585
1	5.1546	0.88604	4.2686	5.2374
2	-0.98039	0.4833	-1.4637	5.2365
3	-1.9802	2.1494	-4.1296	5.2935
4	-4.0404	1.0713	-5.1117	5.2414

5	0	0.70744	-0.70744	5.2462
6	-9.8947	1.0110	- 10.9057	5.254
7	0	0.37516	-0.37516	5.2314
8	0	0.37516	-0.37516	5.2314
9	5.1402	0.36719	4.773	5.2699
10	0.44444	0.7303	-0.28585	5.2754
11	5.6416	0.74322	4.8984	5.2373
12	0	0.76328	-0.76328	5.2396
13	-0.52356	1.446	-1.9696	5.2637
14	0	-1.5134	1.5134	5.3218
15	0	0.66641	-0.66641	5.2328
16	0	1.3663	-1.3663	5.2885
17	0	1.1415	-1.1415	5.2704
18	0	0.37516	-0.37516	5.2314
19	-1.0526	0.053828	-1.1065	5.2581
20	0	1.8606	-1.8606	5.2972
21	-1.5957	1.8078	-3.4035	5.286
22	0	0.37516	-0.37516	5.2314
23	-0.54054	-1.0876	0.54707	5.3452
24	-4.3478	-0.10875	-4.2391	5.2637
25	-1.1364	0.44591	-1.5823	5.2318
26	-8.046	-0.56419	-7.4818	5.2483
27	-1.25	1.0593	-2.3093	5.2448
28	-2.5316	0.84104	-3.3727	5.2431
29	0.64935	-0.20553	0.85488	5.2696
30	-0.64516	-1.0438	0.39862	5.3258
31	2.5974	-0.82871	3.4261	5.2857
32	7.5949	0.62636	6.9686	5.235
33	-0.58824	-0.16873	-0.41951	5.2457
34	-5.3254	0.38393	-5.7094	5.2363
35	-5	-0.20529	-4.7947	5.2381
36	0	.090816	- 0.090816	5.246
37	11.8421	-0.04801	11.8901	5.2349
38	-5.8824	-0.55341	-5.3289	5.2575
39	0	0.83222	-0.83222	5.3132
40	-2.5	-1.5944	-0.90562	5.4523
41	0	1.3503	-1.3503	5.2651
42	2.5641	0.73005	1.8341	5.2958
43	5	-0.11257	5.1126	5.2713
44	0	-0.41315	0.41315	5.2808
45	1.1905	-1.0114	2.2019	5.3508
46	-1.1765	-0.66399	-0.51248	5.2545
47	3.5714	-0.92441	4.4958	5.2854
48	-1.1494	-0.70349	-0.44594	5.2591
49	-2.3256	1.2976	-3.6232	5.3145
50	-4.7619	-1.346	-3.4159	5.3249
51	0	.055957	- 0.055957	5.2371
52	-10.625	-.56148	- 10.0635	5.2871

53	0	-0.78373	0.78373	5.3005
54	0	0.37516	-0.37516	5.2314
55	0	3.1029	-3.1029	5.3983
56	0	-0.34217	0.34217	5.2661
57	0	0.26861	-0.26861	5.2855
58	-9.0909	-0.64508	-8.4458	5.3535
59	6.1538	0.48602	5.6678	5.2629
60	-5.7971	0.22708	-6.0242	5.3754
61	-6.1538	0.22367	-6.3775	5.232
62	-0.81967	0.39603	-1.2157	5.249
63	-4.1322	3.3327	-7.4649	5.8245
64	3.4483	-0.00389	3.4522	5.2382
65	-8.3333	4.0576	- 12.3909	5.6832
66	9.0909	2.59	6.5009	5.3393
67	-4.3333	2.9754	-7.3087	5.4082
68	-2.439	4.3755	-6.8145	5.6887
69	2.6786	-2.0927	4.7712	5.6571
70	9.5652	-0.76691	10.3321	5.2726
71	-1.5873	-0.31695	-1.2704	5.2402
72	-4.8387	0.99174	-5.8305	5.2534
73	-1.6949	-1.3628	-0.33209	5.3269
74	3.4483	-1.3854	4.8337	5.4708
75	5	0.78722	4.2128	5.2811
76	0.79365	.87263	- 0.07898	5.2418
77	3.1496	0.5892	2.5604	5.2335
78	-1.5267	0.49929	-2.026	5.2751
79	-0.77519	0.4456	-1.2208	5.2428
80	-1.5625	0.8365	-2.399	5.2916
81	-3.1746	0.63844	-3.813	5.2738
82	-1.6393	-1.2576	-0.38175	5.2793
83	-8.3333	-0.77011	-7.5632	5.2571
84	0	-0.2698	0.2698	5.2482
85	-7.2727	0.16981	-7.4425	5.2379
86	6.8627	0.0556	6.8071	5.313
87	11.9266	0.53305	11.3936	5.2328
88	-4.918	-1.7612	-3.1568	5.3175
89	1.5517	0.56549	0.98623	5.2431
90	-3.2258	-0.37654	-2.8493	5.2997
91	-7.0175	-0.14095	-6.8766	5.2381
92	4.717	1.1305	3.5865	5.3235
93	0	0.37516	-0.37516	5.2314
94	-12.6126	-1.8135	- 10.7992	5.456
95	-5.1546	-0.10815	-5.0465	5.2545
96	-3.2609	-2.1351	-1.1258	5.3526
97	1.1236	1.5171	-0.39353	5.255
98	0	-0.12778	0.12778	5.2682
99	2.2222	0.41458	1.8076	5.275
100	10.8696	3.0171	7.8525	5.3824

101	0.98039	1.1657	-0.18536	5.3213
102	-2.9126	-0.6822	-2.2304	5.4504
103	0	-0.14818	0.14818	5.2786
104	2	0.82333	1.1767	5.249
105	-10.7843	-1.3424	-9.4419	5.6382
106	-11.8681	1.8902	- 13.7583	6.2524
107	-0.24938	-2.445	2.1956	5.4073
108	-3.75	1.9592	-5.7092	5.4566
109	-5.1948	1.9154	-7.1102	5.5948
110	-4.1096	3.3318	-7.4414	5.4101
111	0	1.5973	-1.5973	5.5433
112	-1.4286	3.1791	-4.6076	5.4803
113	0	2.1734	-2.1734	5.2956
114	-2.8986	0.56075	-3.4593	5.2894
115	-7.4627	-1.2065	-6.2562	5.2777
116	0	1.2658	-1.2658	5.4788
117	-3.2258	1.17	-4.3958	5.5793
118	0	.034935	- 0.034935	5.3295
119	6.6667	0.11581	6.5509	5.2848
120	7.8125	-0.4188	8.2313	5.5855
121	-8.6957	-0.48554	-8.2101	5.3128
122	1.5873	-0.06309	1.6504	5.235
123	-3.125	-0.6285	-2.4965	5.2624
124	3.2258	-0.23619	3.462	5.5346
125	6.25	-0.57352	6.8235	5.6076
126	0	0.37516	-0.37516	5.2314
127	13.2353	2.4892	10.7461	5.33
128	7.7922	0.17351	7.6187	5.4313
129	-3.6145	0.61158	-4.226	5.3241
130	-5	0.059073	-5.0591	5.2778
131	-5	0.92616	-5.9262	5.547
132	-0.27701	2.3103	-2.5873	5.3436
133	2.7778	1.0722	1.7056	5.2435
134	8.1081	2.1653	5.9428	5.2882
135	0	0.32628	-0.32628	5.2333
136	-13.75	1.2614	- 15.0114	5.4836
137	-5.7971	1.0183	-6.8154	5.2424
138	7.6923	1.3488	6.3435	5.317
139	-2.8571	-0.5412	-2.3159	5.2561
140	2.9412	-0.28255	3.2237	5.337
141	0	0.11548	-0.11548	5.3229
142	7.1429	0.69326	6.4496	5.6708
143	-1.3333	-0.89248	-0.44085	5.2706
144	0	1.6337	-1.6337	5.2897
145	2.7027	0.61617	2.0865	5.2455
146	1.3158	-0.60194	1.9177	5.2493
147	-3.8961	0.42373	-4.3198	5.2585
148	-2.7027	0.02762	-2.7303	5.2371

149	0	-0.05595	0.05595	5.3441
150	0	0.32847	-0.32847	5.2342
151	0	0.2666	-0.2666	5.2431
152	5.5556	0.47306	5.0825	5.2637
153	5.2632	0.9825	4.2807	5.3068
154	6.25	0.66859	5.5814	5.2417
155	8	-0.62725	8.6272	5.4032
156	1.3072	-0.28974	1.5969	5.2404
157	-2.1505	0.18024	-2.3308	5.2322
158	-7.6923	-0.52413	-7.1682	5.2592
159	-4.7619	0.68189	-5.4438	5.3653
160	0	0.86701	-0.86701	5.2357
161	-7.5	0.76785	-8.2679	5.3204
162	-1.3514	1.0791	-2.4305	5.2509
163	2.7397	-0.09725	2.837	5.2517
164	0	.086790	- 0.08679	5.2329
165	-6.6667	0.093749	-6.7604	5.2343
166	-2.8571	-0.07247	-2.7847	5.2536
167	11.7647	0.089525	11.6752	5.2498
168	0	-0.42644	0.42644	5.3111
169	-2.6316	0.55419	-3.1858	5.259
170	0	0.82821	-0.82821	5.2926
171	0	0.69239	-0.69239	5.235
172	-2.7027	0.37006	-3.0728	5.2473
173	-2.7778	0.84917	-3.6269	5.2625
174	-14.2857	-.26599	- 14.0197	5.4704
175	6.6667	0.99568	5.671	5.2463
176	0	0.49693	-0.49693	5.3017
177	-6.25	0.30301	-6.553	5.2812
178	0	1.0318	-1.0318	5.239
179	-4.3333	1.6086	-5.942	5.3376
180	0	0.48642	-0.48642	5.2327
181	2.0906	-1.4835	3.5741	5.3995
182	-1.0239	0.12045	-1.1443	5.2362
183	0	0.45489	-0.45489	5.2585
184	-3.4483	0.61414	-4.0624	5.2324
185	0	0.37516	-0.37516	5.2314
186	-0.35714	-0.93424	0.5771	5.2732
187	0	0.10099	-0.10099	5.234
188	0	0.64551	-0.64551	5.2406
189	0	-0.48517	0.48517	5.2836
190	-3.2258	-0.13027	-3.0955	5.2414
191	3.7037	0.96898	2.7347	5.2412
192	0	0.37516	-0.37516	5.2314
193	0	0.33511	-0.33511	5.3199
194	0	-0.28708	0.28708	5.2895
195	14.2857	-0.0282	14.3139	5.2631
196	3.125	-3.90E-04	3.1254	5.2352

197	0	0.37516	-0.37516	5.2314
198	-3.0303	0.042817	-3.0731	5.2337
199	3.125	-0.11708	3.2421	5.2517
200	9.0909	-0.5657	9.6566	5.8646
201	2.7778	0.65656	2.1212	5.2371
202	-2.7027	-0.58009	-2.1226	5.385
203	5.5556	1.0756	4.4799	5.2411
204	-5.2632	1.9776	-7.2407	5.3631
205	-6.9444	1.9936	-8.9381	5.9536
206	1.4925	1.3575	0.13499	5.2494
207	0	0.76722	-0.76722	5.2707
208	4.4118	-0.64591	5.0577	5.4217
209	1.4085	-0.0084	1.4168	5.256
210	2.7778	-0.24242	3.0202	5.2385
211	-6.7568	0.15255	-6.9093	5.2416
212	-1.4493	0.77781	-2.2271	5.3042
213	-1.4706	-0.06874	-1.4018	5.2369
214	10.4478	0.39372	10.054	5.2318
215	4.0541	0.23721	3.8168	5.3289
216	-1.2987	-0.09804	-1.2007	5.2811
217	1.3158	0.23047	1.0853	5.2413
218	3.8961	-0.28292	4.179	5.2651
219	-3.75	0.065089	-3.8151	5.2353
220	3.8961	0.024699	3.8714	5.2339
221	0	0.48916	-0.48916	5.2423
222	2.5	0.66143	1.8386	5.2349
223	2.1951	1.8555	0.33964	5.2772
224	-0.95465	2.2059	-3.1606	5.4016
225	-1.2048	1.3182	-2.523	5.3265
226	1.2195	1.2216	-. 20916	5.2443
227	6.0241	1.5687	4.4554	5.2635
228	0	0.32133	-0.32133	5.2361
229	-2.2727	0.74242	-3.0152	5.2387
230	4.6512	-0.1946	4.8458	5.2379

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Summary statistics for single equation static forecasts

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Based on 500 observations from 717 to 1216

Mean Prediction Errors -.33345 Mean Sum Abs Pred Errors 2.9401

Sum Squares Pred Errors 17.4719 Root Mean Sumsq Pred Errors 4.1799

Predictive failure test F(500, 713)= .52048[1.00]

Structural stability test F(3,1210)= 3.9382[.008]

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Forecasted Returns of Gold Fields of South Africa

Single Equation Static Forecasts

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Based on OLS regression of FIELDSRET on:
C MKTRETF MINRETF,
Where c, MKTRETF and MINRETF are constants, market returns and mineral sector returns, respectively.
576 observations used for estimation from 1 to 576

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Date	Actual	Prediction	**Excess Returns**	S.D. of Excess Returns
-269	0	-0.0611	0.061103	1.5903
-268	0.46512	-0.02264	0.48776	1.5866
-267	0	-0.02805	0.028053	1.5866
-266	0.92593	-0.02101	0.94693	1.5866
-265	0.91743	-0.02379	0.94122	1.5866
-264	0.90909	-0.02607	0.93516	1.5866
-263	1.8018	-7.28E-04	1.8025	1.5869
-262	-0.88496	-0.02636	-0.8586	1.5867
-261	-1.7857	-0.00529	-1.7804	1.5867
-260	0	-0.01227	0.012274	1.5866
-259	0.63636	-0.01868	0.65505	1.5879
-258	-0.63234	-0.01267	-0.61967	1.5867
-257	0	-0.01059	0.010594	1.5866
-256	-0.90909	-0.01852	-0.89058	1.5866
-255	0	-0.03586	0.035859	1.5867
-254	0	-0.01309	0.013086	1.5866
-253	-0.91743	-0.00698	-0.91045	1.5868
-252	-0.27778	-0.01137	-0.26641	1.5871
-251	0.46425	-0.00905	0.4733	1.5868
-250	0.73937	0.008177	0.73119	1.5905
-249	0.6422	-0.02837	0.67057	1.5868
-248	0	-0.03656	0.036564	1.5891
-247	7.5661	-0.00997	7.5761	1.5866
-246	-2.5424	-0.01557	-2.5268	1.5868
-245	0	-0.01703	0.017026	1.5871
-244	-1.7391	-0.00134	-1.7378	1.5877
-243	0.44248	0.014465	0.42801	1.5888
-242	-0.26432	-0.01535	-0.24897	1.5867
-241	-0.4417	0.003529	-0.44523	1.5883
-240	0	-0.03335	0.033354	1.5869
-239	1.331	-0.01332	1.3443	1.5866
-238	0	-0.03894	0.03894	1.5879
-237	-0.17513	-0.03379	-0.14134	1.5868
-236	0.4386	-0.04499	0.48358	1.5884
-235	-0.43668	-0.00426	-0.43242	1.5877

-234	0	-0.0296	0.0296	1.5869
-233	-0.87719	0.011234	-0.88843	1.5891
-232	-0.44248	0.004123	-0.4466	1.5876
-231	0	-0.0064	0.006395	1.5872
-230	-0.44444	-0.03252	-0.41192	1.5869
-229	-0.44643	-0.0251	-0.42133	1.5868
-228	-1.3453	-0.00314	-1.3422	1.5872
-227	-2.0909	-0.01961	-2.0713	1.5866
-226	-2.507	-0.00753	-2.4994	1.5867
-225	0	-0.01194	0.01194	1.5866
-224	-3.3333	-0.02428	-3.3091	1.5866
-223	2.4631	-0.01712	2.4802	1.5866
-222	-0.96154	0.025719	-0.98726	1.5926
-221	0.97087	-0.02741	0.99829	1.5867
-220	1.4423	-0.04591	1.4882	1.5876
-219	3.3175	-0.00229	3.3198	1.587
-218	-0.45872	-0.01643	-0.44228	1.5872
-217	-0.46083	0.025515	-0.48634	1.5935
-216	-0.46296	-0.02005	-0.44291	1.5866
-215	-0.46512	0.016775	-0.48189	1.5912
-214	-0.93458	-0.0396	-0.89498	1.587
-213	-1.8868	-0.04621	-1.8406	1.5877
-212	0	-0.04558	0.045578	1.5887
-211	-1.9231	-0.01922	-1.9039	1.5866
-210	-5.3922	-0.02305	-5.3691	1.5866
-209	-0.51813	-0.01921	-0.49893	1.5866
-208	-3.125	-0.01005	-3.1149	1.5866
-207	2.1505	-0.02994	2.1805	1.5867
-206	0.73684	-0.03204	0.76888	1.5873
-205	0.52247	-0.03643	0.55889	1.5869
-204	-1.0395	-0.01264	-1.0269	1.5866
-203	0.84034	-0.00208	0.84241	1.5874
-202	-0.83333	0.001337	-0.83467	1.5868
-201	0.31513	-0.00522	0.32035	1.5868
-200	-0.52356	-0.04016	-0.48341	1.5871
-199	-1.0526	-0.0291	-1.0235	1.5871
-198	-2.1277	-0.02415	-2.1035	1.5866
-197	-2.7174	-0.02676	-2.6906	1.5868
-196	-0.89385	-0.04736	-0.8465	1.5893
-195	1.4656	-0.0216	1.4872	1.5867
-194	1.1111	-0.00928	1.1204	1.5866
-193	-1.0989	-0.02932	-1.0696	1.5868
-192	0	-0.01491	0.01491	1.5866
-191	0	-0.01735	0.017347	1.5866
-190	0.55556	-0.00531	0.56087	1.5873
-189	1.6575	-0.01992	1.6774	1.5867
-188	0.54348	-0.00403	0.54751	1.5873
-187	2.7027	0.006141	2.6966	1.5871

-186	-1.0526	-0.01631	-1.0363	1.5866
-185	2.6596	-0.048	2.7076	1.5875
-184	0.51813	-0.00653	0.52466	1.5877
-183	0	-7.70E-04	7.70E-04	1.587
-182	0.51546	-0.02793	0.5434	1.5867
-181	-0.51282	-0.03213	-0.48069	1.5871
-180	-1.5464	-0.04422	-1.5022	1.5876
-179	-0.31414	-0.02313	-0.291	1.5871
-178	0.52521	-0.0345	0.55971	1.5879
-177	0.83595	-0.02145	0.8574	1.5866
-176	-0.82902	-0.04142	-0.78759	1.5886
-175	0.31348	-0.03354	0.34702	1.5867
-174	1.0417	-0.00597	1.0476	1.5866
-173	0.51546	-0.0369	0.55236	1.5886
-172	-1.8462	-0.00422	-1.8419	1.5868
-171	0.31348	-0.0399	0.35337	1.5868
-170	0	0.54418	-0.54418	1.6871
-169	1.0417	-0.02218	1.0638	1.5866
-168	1.5464	-0.01214	1.5585	1.5866
-167	1.5228	-0.02346	1.5463	1.5867
-166	0	-0.03642	0.036423	1.5873
-165	1	-0.03429	1.0343	1.5869
-164	0.49505	-0.01632	0.51137	1.5866
-163	0	-0.0132	0.013197	1.5866
-162	-1.9704	0.002308	-1.9728	1.5877
-161	-1.5075	-0.02088	-1.4867	1.5866
-160	-0.5102	-0.0154	-0.4948	1.5868
-159	-1.5385	3.67E-04	-1.5388	1.5882
-158	0	-0.02113	0.021128	1.5866
-157	0	-0.00749	0.007487	1.5868
-156	-1.0417	-0.02368	-1.018	1.5868
-155	0	-0.04889	0.048891	1.5883
-154	-2.6316	-0.01453	-2.617	1.5866
-153	0	-0.01326	0.013256	1.5866
-152	-2.7027	-0.0041	-2.6986	1.5875
-151	0	-0.01097	0.010967	1.5867
-150	4.4444	-0.01301	4.4575	1.587
-149	-0.31915	-0.02286	-0.29629	1.5866
-148	2.4546	-0.01733	2.472	1.5866
-147	0.52083	-0.01766	0.53849	1.5866
-146	2.0725	-0.0129	2.0854	1.5867
-145	0.50761	-0.02655	0.53416	1.5866
-144	-2.0202	-0.00675	-2.0135	1.587
-143	0	-0.02435	0.024347	1.5869
-142	-7.2165	-0.02293	-7.1936	1.5866
-141	10	-0.01306	10.0131	1.5866
-140	2.0202	0.020792	1.9994	1.5935
-139	0.9901	-0.02092	1.011	1.5867

-138	0	-0.01793	0.017929	1.5866
-137	0	-0.02975	0.029752	1.587
-136	-2.1569	-0.03522	-2.1216	1.5877
-135	1.8036	-0.01894	1.8225	1.5871
-134	-0.3937	-0.01996	-0.37374	1.5866
-133	0	-0.01306	0.01306	1.5866
-132	-4.6443	-0.00515	-4.6391	1.5868
-131	-2.5907	0.00758	-2.5983	1.5879
-130	-15.2128	-0.02598	-15.1868	1.5869
-129	-9.6612	0.004908	-9.6661	1.5868
-128	0.13889	-0.02111	0.16	1.5866
-127	3.7448	-0.0279	3.7727	1.5873
-126	20.3209	-0.02395	20.3448	1.5867
-125	-5.4444	-0.03641	-5.408	1.5868
-124	0	-0.0148	0.014799	1.5866
-123	1.6451	-0.02197	1.6671	1.5866
-122	-1.7341	-0.00944	-1.7247	1.5867
-121	-8.2353	-0.01295	-8.2223	1.5866
-120	-1.2821	-0.04588	-1.2362	1.5871
-119	-0.38961	-0.02604	-0.36357	1.5867
-118	-5.9974	-0.01405	-5.9833	1.5866
-117	-2.7739	-0.02181	-2.7521	1.5867
-116	-12.2682	-0.02728	-12.2409	1.5871
-115	-1.1382	-0.03622	-1.102	1.5868
-114	-1.3158	0.004641	-1.3204	1.5876
-113	1	-0.01821	1.0182	1.5866
-112	7.2607	-0.02252	7.2832	1.5866
-111	6.1538	-0.02016	6.174	1.5866
-110	0	-0.01292	0.012924	1.5866
-109	0	-0.01883	0.018827	1.5867
-108	3.3333	-0.01845	3.3518	1.5874
-107	-1.8233	-0.00377	-1.8195	1.587
-106	2.8571	-0.01773	2.8749	1.587
-105	-2.9167	-0.01278	-2.9039	1.5867
-104	-0.71531	-0.0238	-0.69151	1.5867
-103	-6.0519	-0.00467	-6.0472	1.587
-102	-1.8405	-0.00795	-1.8325	1.5869
-101	-3.125	-0.01167	-3.1133	1.5866
-100	6.2903	-0.02252	6.3128	1.5866
-99	3.7936	-0.01059	3.8042	1.5869
-98	-1.3158	-0.0276	-1.2882	1.5869
-97	-5.9259	0.002751	-5.9287	1.5878
-96	0.47244	-0.02931	0.50175	1.587
-95	5.0157	-0.04198	5.0577	1.5874
-94	0	-0.03217	0.032173	1.5878
-93	4.4776	-0.04015	4.5178	1.5873
-92	0	-0.0255	0.025496	1.5871
-91	-1.5714	-0.02615	-1.5453	1.5869

-90	1.5965	-0.01795	1.6145	1.5871
-89	3.5714	-0.02004	3.5915	1.5867
-88	2.069	-0.01865	2.0876	1.5866
-87	0	-0.00515	0.005148	1.5868
-86	0	-0.01194	0.01194	1.5866
-85	2.027	-0.0089	2.0359	1.5893
-84	-1.3245	-0.02461	-1.2999	1.5868
-83	0	-0.01294	0.012938	1.5866
-82	0	-0.02012	0.020121	1.5867
-81	0	-0.0289	0.028897	1.5874
-80	2.0134	-0.04953	2.063	1.5874
-79	-2.6316	-0.0227	-2.6089	1.5867
-78	-1.3514	-0.03306	-1.3183	1.5873
-77	1.3699	-0.01684	1.3867	1.5866
-76	-0.67568	-0.01893	-0.65675	1.5866
-75	-7.483	-0.02234	-7.4607	1.5866
-74	0.73529	-0.01961	0.7549	1.5866
-73	2.9197	-0.01033	2.93	1.5867
-72	0	-0.00725	0.007246	1.5871
-71	1.844	0.007671	1.8363	1.5887
-70	-1.1142	-0.02878	-1.0854	1.5867
-69	0.70423	-0.0122	0.71642	1.5867
-68	-0.6993	-0.02855	-0.67075	1.587
-67	-1.4085	-0.01857	-1.3899	1.5866
-66	-0.14286	-0.02566	-0.1172	1.5869
-65	1.5737	-0.02762	1.6013	1.5866
-64	-2.8169	-0.02595	-2.791	1.5868
-63	-1.4493	-0.02038	-1.4289	1.5866
-62	1.4706	-0.01251	1.4831	1.5867
-61	0.72464	-0.02039	0.74503	1.5866
-60	0.28777	-0.01957	0.30734	1.5866
-59	-0.28694	-0.02064	-0.2663	1.5866
-58	-2.1583	-0.00988	-2.1484	1.5868
-57	2.9412	-0.02161	2.9628	1.5866
-56	0.14286	-0.03062	0.17347	1.5872
-55	-1.5692	-0.01706	-1.5521	1.5868
-54	-1.3043	-0.01582	-1.2885	1.5866
-53	-3.0837	-0.02016	-3.0635	1.5866
-52	-3.0303	-0.00621	-3.0241	1.5869
-51	1.5625	-0.01308	1.5756	1.5867
-50	-1.5385	-0.03856	-1.4999	1.5873
-49	1.5625	-0.0328	1.5953	1.5874
-48	6.1538	-0.03684	6.1907	1.5879
-47	-2.8986	-0.0127	-2.8859	1.5867
-46	1.4925	-0.00987	1.5024	1.5867
-45	-2.9412	-0.0222	-2.919	1.5866
-44	-3.0303	-0.00301	-3.0273	1.5873
-43	-1.5625	-0.013	-1.5495	1.5866

-42	0	0.011633	-0.01163	1.5895
-41	2.381	0.006179	2.3748	1.5889
-40	2.3256	0.53856	1.787	1.6824
-39	1.0606	-0.02929	1.0899	1.587
-38	-1.0495	-0.02384	-1.0256	1.5867
-37	-2.2727	0.020746	-2.2935	1.5913
-36	0.77519	-0.03157	0.80676	1.5873
-35	-0.15385	-0.02295	-0.13089	1.5869
-34	-2.1572	-0.01933	-2.1378	1.5866
-33	3.1496	-0.01178	3.1614	1.5867
-32	0.76336	0.007336	0.75602	1.5886
-31	-1.5152	0.001298	-1.5164	1.5877
-30	0.15385	-0.02864	0.18248	1.5867
-29	-1.6897	-0.03028	-1.6594	1.5872
-28	-4.6875	-0.02191	-4.6656	1.5867
-27	0	-0.03584	0.035838	1.5878
-26	0.81967	-0.01345	0.83312	1.5866
-25	2.439	-0.0102	2.4492	1.5873
-24	3.1746	-0.002	3.1766	1.5873
-23	-2.3077	0.029173	-2.3369	1.5937
-22	0	-0.01459	0.014587	1.5866
-21	1.5748	-0.01886	1.5937	1.5866
-20	5.4264	-0.01179	5.4381	1.5871
-19	1.4706	-0.02713	1.4977	1.5872

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Summary statistics for single equation static forecasts

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Based on 391 observations from 577 to 967

Mean Prediction Errors -.13759 Mean Sum Abs Pred Errors 1.6101

Sum Squares Pred Errors 6.9502 Root Mean Sumsq Pred Errors 2.6363

Predictive failure test F(391, 573)= 3.0728[.000]

Structural stability test F(3, 961)= .84817[.468]

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