

Part 1

Question 1

19 December 2000 an article appeared in *The Wall Street Journal* discussing stock price declines that followed share repurchases made by AT&T, Intel, Microsoft, and Hewlett-Packard. The article mentions that Warren Buffett, chairman of Berkshire Hathaway, criticized firms that engaged in share repurchases. In a letter to shareholders, Buffett noted that share repurchases made sense during the mid-1970s, when many stocks traded below their intrinsic value. However, he argued that conditions changed during the bull market of the 1990s, even though share repurchases had become much more frequent. He also suggested that the motivation for share repurchases had also changed, and that during the 1990s firms bought back their shares in order to pump up their stock prices. Discuss Warren Buffett's views.

Question 2

Imagine that you are a divisional manager. Currently you are a member of a committee which is considering two product investments proposed by two other divisional managers: Joe and John. While walking over to the presentations, Joe seems rather arrogant. He mentions that he golfs with the CEO, is a key player in the firm, and that you could really learn a lot from him. In thinking over the projects after the presentations, you find you are really leaning toward John's proposal even though the projects are quite similar in terms of estimated cash flows and risks. How can you explain this?

Part 2

1. "Since capital budgeting decisions involve the estimation of a project's future cash flows and the rate at which they should be discounted is still a relatively subjective process, the behavioral traits of managers still affect this process." Discuss this statement and suggest how managers can better improve their ability to eliminate biases in their forecasting.

2. 23 July 2002 an article entitled "Investors Appreciate Dividends Again, See Them as Safer Bets in Bear Market," appeared on Associated Press Newswire. The article described two reasons why financial planners have routinely recommended that investors hold dividend-paying stocks, especially in bear markets such as the period 2001-2002: First, retired investors use quarterly dividends to augment their income find dividends to be more attractive during bear markets. Second, investors search for a bird in the hand, which dividends represent. In this respect, dividends provide investors with the ability to be patient, and wait out the market decline. The article quotes Steve Wetzel, a professor of finance at New York University's School of Continuing Education and a certified financial planner, and Arnie Kaufman, editor of Standard & Poor's newsletter *The Outlook*. Discuss both reasons mentioned above, in the context of this week's assigned readings.

3. Discuss the merits of the following statement: Inside directors should constitute the majority of a corporate board, because insiders have superior understanding of the firm's business operations. What evidence can you cite in support or in opposition to this assertion?

Readings:

1. Lecture Notes Below
2. Survey of Behavioral Corporate Finance (Intermediate):
<http://www.people.hbs.edu/mbaker/cv/papers/bcfsurvey2v20.pdf>
3. Behavioral Corporate Finance (Intermediate):
[https://www.researchgate.net/publication/227374092 Behavioral Corporate Finance](https://www.researchgate.net/publication/227374092_Behavioral_Corporate_Finance)
4. Group Think (Basic):
<http://agb.org/sites/default/files/legacy/u16/Vanguard%206.pdf>

Part 1: Capital Budgeting

We describe how in practice managers make decisions about capital budgeting, both for new projects and existing projects. We focus on the following behavioral phenomena that impact managers' capital budgeting decisions:

- **Affect heuristic**
- **Overconfidence**
- **Excessive optimism**
- **Aversion to a sure loss**
- **Confirmation bias**

Three quarters of chief financial officers (CFOs) responding to the **survey** conducted jointly by Duke University and Financial Executives International (FEI) report that they rely on NPV and IRR. Relative to past surveys, this suggests that financial managers have been making increased use of the capital budgeting skills taught in traditional corporate finance textbooks. Yet there is also evidence to suggest that behavioral phenomena are persistent, and that these phenomena impact managers' decisions adversely.

Some managers use the affect heuristic to make capital budgeting decisions, relying heavily on intuition to make capital budgeting decisions. In doing so they are vulnerable to preference reversal whereby they choose less valuable projects over more valuable projects.

Overconfident managers underestimate project risk. When overconfident managers make capital budgeting decisions, the outcomes surprise them more frequently than they anticipated. Two behavioral phenomena that exacerbate overconfidence are **perceived control** and **availability bias**.

There is strong evidence of excessively optimistic capital budgeting forecasts in both the public sector and the private sector. The behavioral elements that exacerbate excessive optimism are perceived control, **familiarity**, **representativeness**, **desirability**, and **anchoring and adjustment**. Agency conflicts also contribute to excessively optimistic capital budgeting forecasts.

Aversion to a sure loss makes managers reluctant to terminate losing projects, thereby committing the sunk cost fallacy. As a result they escalate their commitment to losing projects, thereby throwing good money after bad, often seeking to avoid the experience of regret. When facing losing projects, managers are vulnerable to confirmation bias, discounting negative information about these projects. Remedies for behavior induced by psychological phenomena are different than behavior induced by agency conflicts.

Traditional Approach to Capital Budgeting

The traditional approach to capital budgeting centers on the incremental cash flows associated with a project, the net present value (NPV) of the project, the internal rate of return (IRR) of the project, and in some cases the payback period for the project.

Survey Evidence

Survey evidence indicates that 75 percent of CFOs indicate they rely on NPV and IRR to make capital budgeting decisions. This is a good sign. At the same time, 57 percent of CFOs report that they use the payback rule, especially longer-tenure CFOs who do not have MBA degrees.

Behavioral concepts can help explain why the payback rule continues to be popular, despite the reservations expressed in corporate finance textbooks. The payback rule is more intuitive than both IRR and NPV, and therefore leads decision makers to feel more comfortable with their decisions if it accords with intuition. IRR has more intuitive appeal than NPV, because return is a more familiar concept than discounted cash flow (NPV).

The Affect Heuristic

The psychological term for making decisions that rely on intuitive notions of good and bad is the affect heuristic. Although traditional textbooks in corporate finance emphasize analytical techniques for capital budgeting, analytics alone do not drive managers' decisions about project selection.

Managers are reluctant to make decisions that they do not feel right about. By the same token, they are inclined to make decision that feel right to them, even when those decisions are not supported by formal analysis.

Overconfidence

Overconfident managers underestimate risk. As a result they are inclined to overestimate the value of adopting projects. There are two behavioral phenomena that exacerbate overconfidence in respect to capital budgeting. The first is perceived control. As it happens, this phenomenon is strongest for white males who trust experts in general and engineers in particular. The events in respect to Iridium are a case in point. The second behavioral phenomenon is availability. It is difficult, if not impossible, to imagine every contingency. Because out of sight is out of mind, availability bias typically leads managers to downplay unfavorable events that do not easily come to mind. The events

that surprised Iridium managers, such as the widespread adoption of cellular phones, are cases in point.

Excessive Optimism

Excessive optimism is a widely documented phenomenon in both public sector projects and private sector projects. Military projects and public transportation projects have been well studied in respect to overspending, and there are numerous examples, both from the distant past and the recent past.

Excessive optimism has many root causes. The first is perceived control, the same phenomenon that encourages overconfidence. Additional behavioral phenomena that appear to encourage excessive optimism are familiarity, representativeness, desirability, and anchoring and adjustment.

Agency conflicts provide a non-behavioral reason why some managers appear to be excessively optimistic when forecasting project cash flows. Some take the view that agency conflicts are the sole reason for excessively optimistic forecasts. However, others disagree.

One way to mitigate the impact of the affect heuristic, overconfidence, and excessive optimism is for managers to adopt an outside view in addition to their normal inside view. The inside view focuses attention on the details of the project. The outside view asks managers to compare themselves to managers in other similar firms, and to compare their projects to similar projects. In doing so, adopting the outside view requires that managers estimate the success rates for other managers and other projects. Having done so, the outside view has managers asking themselves to explain where their performance can reasonably fit into the general pattern, and why. Doing so tends to mitigate the tendencies to be overconfident and excessively optimistic, but not eliminate these tendencies.

Part 2: Capital Structure

In practice, decisions about capital structure reflect a mix of traditional and behavioral considerations. Recall that the traditional theories of capital structure for managers include: tax shields, costs of financial distress, flotation costs, and information asymmetries. Tradeoff theory predicts that firms will have optimal target debt-to-equity ratios, while pecking order theory predicts that firms do not have optimal target debt-to-equity ratios.

Although many managers do at times target their firms' debt-to-equity ratios, and do engage in behaviors that reflect **pecking order** thinking, these are not the primary considerations driving decisions about capital structure. The primary considerations driving decisions about capital structure are **dilution, market timing, and financial flexibility**.

The behavioral approach to capital structure emphasizes that managers might be subject to behavioral biases, investors might be subject to behavioral biases, or both might be

subject to behavioral biases. When a firm is financially constrained, but its equity is undervalued, managers of constrained firms have to adjust project hurdle rates to reflect the opportunity cost of repurchasing shares.

When managers' exhibit **excessive optimism** and **overconfidence**, but the market is efficient, then managers of cash rich firms typically adopt negative net present value projects, while managers of cash poor firms typically reject positive NPV projects, unless NPV is very large. In this respect, varying financial flexibility causes firms' investment policies to be **overly sensitive to cash flows**, and on average to **overinvest**. There are two proxies that are correlated with CEO excessive optimism and overconfidence. One is a **press coverage** indicator, and the second is a **long holder** property that pertains to the late exercise of executive stock options.

When a firm's equity is mispriced, managers might find that they face a conflict between the **short-term interests** of shareholders and the **long-term interests** of shareholders. In this case, managers strive for some kind of balance.

Traditional Approach to Capital Structure

The traditional approach to capital structure focuses on two approaches, tradeoff theory and pecking order theory. Tradeoff theory centers on the choice of a debt-to-equity ratio that optimally balances the benefit of tax shields against the expected costs of financial distress. Pecking order theory centers on a pecking order for financing where internal equity dominates debt, which in turn dominates external equity. Notably, pecking order theory does not feature an optimal debt-to-equity ratio. The empirical evidence shows that pecking order, market timing and financial flexibility together are related to traditional capital structure decisions. For example, dilution and market timing are the top factors that influence managers' decisions about issuing new equity. The top factor influencing financial executives' decisions about new debt is financial flexibility. For example, firms issue new equity when stock prices have recently risen and market-to-book ratios are high. This suggests that managers issue equity when that equity is most likely to be overpriced. Also, when large firms engage in substantial investments, they tend to rely on debt financing.

How Do Managers Choose Capital Structure in Practice?

Chief financial officers indicate that the top two considerations that drive their decisions about issuing new equity are dilution and market timing. The top consideration driving their decision about how much debt to issue is financial flexibility. Some aspects of tradeoff theory and pecking order theory are reflected in their thinking. However, these considerations are ranked well down the list.

Behavioral APV

Behavioral adjusted present value augments traditional adjusted present value to include terms associated with managers' perceptions of project NPV and financing side effects associated with market mispricing. Behavioral APV reflects errors and biases by managers, the market, or both. Behavioral APV calculation indicates whether managers

of financially constrained firms with positive NPV projects, but whose equity is undervalued, should invest or repurchase. It is an accepted fact established in finance that investors require compensation to assume risk. Risk can take any form in financial markets, however, in the traditional framework, the focus is on fundamental risk. The behavioral approach adds sentiment/bias risk. Thus, behavioral risk premiums serve as compensation for bearing both sentiment and fundamental risks. Behavioral risk premiums, like their traditional counterparts, will be associated with betas and factor pricing models.

Financial Flexibility and Project Hurdle Rates

Cash poor firms with limited debt capacity might choose to reject some positive NPV projects when their firms' equity is undervalued in the market. Even firms with cash might find that it would be better to repurchase shares instead of funding some positive NPV projects.

Sensitivity of Investment to Cash Flow

In practice, the investment policies of many firms are sensitive to their cash flows, in that firms are more apt to engage in investment activity when they are cash rich than when they are cash poor. Specifically, cash poor firms appear reluctant to fund projects that they would adopt, but for having to raise external funds.

Excessive Optimism, Overconfidence, and Cash

Excessively optimistic, overconfident managers of cash poor firms reject some positive NPV projects. Excessively optimistic, overconfident managers of cash rich firms adopt some negative NPV projects. Two indications of excessive optimism and overconfidence for CEOs pertain to press coverage and longholding activity in respect to executive stock options. Firms with longholder CEOs feature cash flow sensitive investment policies. On balance, such firms overinvest.

Conflict between Short-Term and Long-Term Horizons

Mispricing can create a conflict for managers, in that they might be forced to choose between maximizing short-term value at the expense of long-term value, and vice-versa. In practice, managers appear to balance the competing objectives.

Individual Investors and the Force of Emotion

An important one is the degree to which "mood" moves markets. There are several relevant studies.

- One study using data from 26 international stock exchanges shows good moods resulting from morning sunshine lead to higher stock returns.

- Other researchers report that stock markets fall when traders' sleep patterns are disrupted due to clock changes due to daylight savings time.
- A third study suggests that World Cup outcomes are strongly correlated with the mood of investors. For example, after a loss in an elimination game, significant market declines were reported in the losing country's market
- Some research suggests happier people are more optimistic and assign higher probabilities to positive events (this implies that happier people are more subject to overconfidence and their adverse investment effects). These same happier people are much less willing to actually take the gamble (more risk averse). So, when they make investments, overconfidence is at work; however, their inclination to take less risk offsets this at the macro level.

One mood altering emotion investors need to learn to manage effectively to be successful is regret. There is regret in most investment decisions, irrespective whether one achieves superior returns or not. For example, when holding a winning and rising investment, there is a strong impulse to sell and take the sure gain (and play with house money). Once sold, there is regret as the stock continues to climb (feeling that one sold too quickly). As a stock pulls back and one sees an opportunity to buy a stock that appears to be an investment, there is regret when the purchase is made and the stock, at least temporarily, continues to decline (regret that bought at too high a price). Another instance when there is regret is when a winner declines (should have sold) and a declining stock recently sold now reverses and increases in price (should have held on to the stock). The point is that one will never consistently sell at the high and buy at the low and, in each instance, the effects of mood are to feel regret. Managing these emotions is critical to being a successful investor; otherwise, the probability of making poor decisions in the future increases.

While the investing behaviors described above have been attributed to mood; another view is that this disposition effect is explained by prospect theory and mental accounting. If a security has made money from the original date of purchase it moves up along the prospect theory value function (see concave portion of the value function below.)

On the other hand, if a security has lost money, it moves down along the same function (along the convex portion). The farther you are away from risk-seeking domain (lower left of curve), the less likely it is that a particular gamble will be partly influenced by risk seeking. So risk aversion is higher for gambles beginning at the lower end of the curve and moving upwards.

The impulse to take gains early as one moves up the concave portion of the curve demonstrates risk aversion (house money effect), whereas the tendency to hold stocks as they suffer losses move down the convex portion of the curve demonstrates risk taking (aversion to a sure loss), suggesting investor set up separate mental accounts for gains and losses.

Part 3: Dividend Policy and M&A

Two psychological phenomena, both involving **mental accounting**, underlie the attractiveness of cash dividends for individual investors. The first phenomenon pertains to the use of consumption expenditure heuristics used to exercise **self-control**. The second phenomenon pertains to the **framing effects that increase tolerance for bearing risk**. The relative attractiveness of cash dividends varies over time, and reflects changes in tax policy and investors' perceptions of risk and return. Institutional investors find dividends attractive for different reasons than do individual investors. In the main, institutional investors favor share repurchases as a form of payout to cash dividends.

Recall that the traditional theories of dividend policy entail, emphasize that economic/finance theories these assume that investors are immune to framing effects. Here we seek to explain why investors are not immune to framing effects, and that as a result managers will want to take these effects into account when setting dividend policy.

The managers of firms cater to the dividend preferences of the investor **clienteles** who hold the stocks of their firms. Older, retired investors are prone to use dividends to fund consumption. The managers of firms whose investor clienteles are dominated by older, retired investors will **cater** to investors and choose **dividend payout heuristics** that feature relatively high, stable dividend payouts. Managers will also cater to investors by changing their dividend payout policies when investors' perceptions of risk and return change, increasing dividends when investors become increasingly pessimistic. Managers use different heuristics for dividend payouts than they use for share repurchases.

Traditional Approach to Payouts

The traditional approach to dividend policy begins with the MM framework, where dividend policy is irrelevant in a world of zero taxes and transaction costs. The basis for the MM argument is that investors are immune to framing effects, wherein money is fungible. Agency conflicts encourage payouts, either in the form of dividends or in the form of share repurchases. Tax penalties discourage dividend payouts.

Changes in Tax Policy

When the tax treatment of dividends became more favorable in 2003, aggregate dividend payouts increased. Microsoft initiated dividend payouts in 2003. The Wall Street Journal suggested that Microsoft might have been seeking to broaden its investor base, by moving in the direction of a widows-and-orphans stock.

Dividends and Individual Investors: Psychology

Older, retired investors rely on consumption expenditure heuristics wherein dividend income is used to finance consumption. Under these heuristics, dividend reductions and omissions tend to result in consumption falling by about the same amount as the reduction or omission. These heuristics have a mental accounting structure, are intended

to achieve self-control in respect to delayed gratification, and are part of a general framework known as the behavioral life cycle hypothesis.

Investors also use dividends to engage in hedonic editing, in that they choose to frame outcomes in ways that are more pleasing to them than in ways that are less pleasing to them. Some investors value dividends because they view dividends as a relatively safe component of their total return, relative to the capital gain.

Empirical Evidence

Older, retired investors hold about 80 percent of their portfolios in dividend paying stocks, favor stocks that feature high dividend yields, and buy stocks before they go ex-dividend. These investors comprise about 15 percent of the population of individual investors. However, the typical investor who is 65 years of age or older holds a portfolio whose value is more than twice as large as the typical investor who is less than 65. Institutional investors prefer share repurchases to dividends.

How Managers Think About Dividends

During the 1980s and 1990s, managers shifted their form of payout from dividends to share repurchases. Managers smoothed dividends relative to earnings, and increased dividends more frequently than they decreased dividends. John Lintner's classic 1956 survey found that managers established target long-run payout ratios, but smoothed dividends in the short-run. Newer survey evidence found that managers use dividend heuristics, and still seek to smooth dividends in the short-run, but target dividends per share and dividend growth rates more frequently than they did in 1956. Only about 25 percent of firms target dividend payout ratios. Recent survey evidence also shows that managers believe that dividends convey information, that they choose their dividend payout policies to attract investors, but by and large they do not use dividends as a signaling device.

Catering to Investors' Tastes for Dividends

The experience of Citizens Utilities Company and its two classes of stock serves to demonstrate that investors are willing to pay a premium for cash dividends. Managers cater to investors' tastes when they choose their dividend policies to meet investors' needs for dividends. Catering might involve dividend smoothing to meet the needs of older, retired investors. Catering might also involve altering dividend policy to meet investors' needs that stem from altered perceptions of risk and return. Investors who engage in hedonic editing will demand more dividends in bear markets than in bull markets. In this regard, the price differential for the two classes of Citizens Utilities stock is correlated with the book-to-market differential between stocks that pay dividends and those that do not.

Mergers and Acquisitions

Excessive optimism and **overconfidence** lead managers involved in mergers and acquisitions to destroy value for their shareholders. Because of **hubris**, the managers of acquiring firms are vulnerable to **the winner's curse** whereby they overpay for target firms. By trusting inefficient market prices, the managers of target firms are vulnerable to accepting overvalued equity in exchange for their firms.

Press coverage and **longholding** behavior in respect to executive stock options serve to identify excessively optimistic, overconfident CEOs. These CEOs are more prone to engage in merger and acquisition activity than other CEOs, especially when their firms are generating cash.

Traditional Approach to M&A

The traditional approach to M&A treats market prices as efficient, and focuses on the synergy associated with the merger or acquisition. The key issue is that acquiring firms only go forward with the merger if the synergy value is positive, and all parties are indifferent between accepting cash after-tax or shares.

The Winner's Curse

On average acquiring firms overpay for targets, which is part of a general phenomenon known as the winner's curse. The behavioral hypothesis associated with such overpayment is the hubris hypothesis.

Optimistic, Overconfident Executives

Press coverage often characterizes CEOs as excessively optimistic or overconfident. CEOs who hold their executive stock options too long also appear to be overconfident. These CEOs are more likely to engage in acquisition than CEOs who do not qualify according to the press coverage or longholding criteria. Excessively optimistic, overconfident CEOs press ahead with an acquisition even after the market response is decidedly negative. Value destroying acquisition activity is most pronounced for firms that are cash rich.

Theory

When market prices are efficient and all managers are rational, the acquiring firm and target firm divide the synergy according to how competitive is the M&A market. With only one bidder, the acquiring firm captures all of the synergy, paying with some combination of stock in the new combined firm and cash.

When market prices are efficient, but the acquiring firm's managers are excessively optimistic and overconfident, those managers' decisions reflect upward bias in the value of the synergy and the market's assessment of the acquiring firm's value. In this case, managers balance off the value of the perceived synergy with their perceptions of paying in undervalued shares, a dilution cost. This leads to a pecking order whereby these managers prefer to pay first in cash, before using shares.

When market prices are inefficient, and the acquiring firm views the equity of its firm as overpriced, they will be prone to engage in market timing, to exploit that mispricing for the benefit of their shareholders. This results in a reversal to the above pecking order.

The presence of asymmetric information between the acquiring firm's managers and target firm's managers introduces an additional cause of the winner's curse. Acquiring firm managers are vulnerable to using a naïve valuation heuristic.

Part 4: Agency Conflict and Corporate Governance

In practice, compensation systems that are intended to **align the interests** of managers with those of shareholders feature insufficient variability in respect to **pay for performance, insufficient dismissal, and overpayment of executives. Overconfidence** on the part of both directors and managers interferes with the institution of appropriate compensation systems. Managers who are **excessively optimistic**, or whose behavior conforms to **prospect theory**, find stock options particularly attractive as a form of compensation. Firms appear to exploit these **biases**. However, options can exacerbate the alignment of interests between managers and shareholders. **Aversion to a sure loss** can be an important factor influencing the behavior of auditors and managers in respect to agency conflicts, especially when **unethical** and **fraudulent** behavior is involved.

Traditional Approach to Agency Conflicts

The traditional approach to agency conflicts involves principals designing contracts that satisfy three constraints known respectively as the participation constraint, the incentive compatibility constraint, and the nonoverpayment constraint.

Paying for Performance in Practice

Survey evidence indicates that in practice, most compensation systems do not satisfy the compatibility constraint and the nonoverpayment constraint. Instead executive compensation does not exhibit sufficient variability in respect to performance, does not involve dismissal as frequently as is warranted, and is unduly generous to executives. The use of stock options has increased over time. Although options appear to have been beneficial in respect to retention (the participation constraint), there is little evidence that their use has served to align the interests of managers with shareholders (incentive compatibility constraint). Corporate governance is positively associated with provisions that increase shareholder rights.

Overconfidence Among Directors and Executives

Overconfident directors delude themselves into believing they are doing a good job of overseeing managers. Overconfident managers render it difficult for directors to put effective compensation systems into place. This section provides a series of quotations by directors, which appeared in *Fortune* magazine, that identify many key issues. The quotations illustrate self-attribution error and the better-than-average effect.

Stock Option-Based Compensation

According to prospect theory, people are prone to overweight the small probabilities associated with large gains. This phenomenon has been called a casino effect. Along with excessive optimism, it explains why executives are prone to overvalue the stock options they receive as part of their compensation. Firms appear to exploit managers' biases when they grant stock options.

Auditing: Agency Conflicts and Prospect Theory

Investors rely on auditors to attest to the accuracy of firms' financial statements. Investors perceive auditors as agents acting on their behalf. Conflicts of interest arise between auditors and investors when auditors' interests involve providing clean opinions for financial statements that they know to be problematic.

The accounting firm most closely identified with conflicts of interest was Arthur Andersen. The accountants within Arthur Andersen witnessed a decline in their incomes as a result of the departure of the consulting division Andersen Consulting. In response, the leadership at Arthur Andersen instituted policy 2X, requiring accountants to bring in twice as much revenue in non-auditing work as in auditing work. Psychologically, this placed many accountants into the domain of losses, thereby encouraging their propensity to be risk seeking. Andersen accountants came to be associated with several high profile scandals that featured aggressive accounting practices, Enron and WorldCom being notable examples.

Sarbanes-Oxley

The Sarbanes-Oxley act was passed in response to a succession of accounting frauds. Among other provisions, the law requires that CEOs and CFOs certify under oath the veracity of their firm's financial statements.

Fraud and Stock Options: Illustrative Example

Evidence suggests that stock options appear to exacerbate the tendency of managers to engage in fraud in respect to their financial statements. HealthSouth was the first firm charged with fraud under Sarbanes-Oxley. Managers were charged with preparing false financial statements to manipulate the firm's stock price so that they could benefit unduly by exercising their stock options. In this regard they apparently took steps to deceive their auditors. Auditing fees were half of consulting fees charged by the firm's accounting firm. Consulting services included the checking of sanitary conditions by accountants. Five former HealthSouth CFOs pled guilty, but its CEO was acquitted of all charges, maintaining that these CFOs had deceived him in committing the fraud.

Managerial Decision Making

One of the most important decisions the firm makes is how determine which capital investments it will make. Coincidentally, this decision is potentially significantly affected by various biases and heuristics we need to be especially aware of as a source of capital budgeting errors:

- **Ease of processing**, which may lead to inappropriate adoption of rules. Even though, it has been shown that the NPV criterion for project selection is the approach that maximizes shareholder wealth, a number of surveys show that managers often utilize less than ideal techniques, such as the internal rate of return

(IRR) and, even worse, payback. When asked, managers tend to rely on the latter two because they may be easier to process and more salient. Employing the KISS principle, these simplified approaches may also have an advantage due to the perceived improved transparency of the approaches.

- **Loss aversion**, which may lead to problems with abandonment. Here, mental accounting suggests that if an account can be kept open in the hope of eventually turning things around this will often be done (sunk cost fallacy). For example, assume that a prior investment has not gone well. Theory says that proper capital budgeting practice is to periodically assess the viability of all current investments, even proceeding with their abandonment when this is a value-enhancing course of action. The problem with abandonment however is that it forces recognition of an ex post mistake. Because of loss aversion (aversion to a sure loss), it may happen that managers foolishly hang on, throwing good money after bad.
- **Affect (Intuition)**, which may cause managers to avoid profitable investments. In one study a total of 114 managers (or individuals with similar responsibilities) served as subjects. Subjects were presented with one of five treatments where they had to make a choice between two internal investment opportunities. In four of the treatments the choice was between one alternative with a higher NPV and a description inducing negative affect/emotion, and a second alternative with a lower NPV but a neutral description. For example, participants were told that they were divisional managers deciding between two product investments, each of which would require working with a different sister division run by two different managers. In one of two cases the manager in question was characterized as being arrogant. Financial information was provided indicating that the project, if done with this individual, would generate a set of cash flows leading to a higher NPV than the other project. The other three negative affect scenarios were similar in their attempt to elicit a negative mood or emotion. The final treatment had neutral descriptions attached to both investment projects. In the control group, the majority of subjects chose the higher-yielding project; in all four negative treatments the opposite happened: situations associated with negative affect were avoided to point of accepting value destruction.

Managers tend to be overconfident. Studies show that they are more susceptible to poor investment selection when their firm is experiencing high cash flows. The frequent result is overinvestment. For example, a study top managers polled them on their likelihood of undertaking a merger/acquisition within the next year. Of those indicating their intent to undertake such a transaction, they expressed a high degree of confidence in the the probability of the M&A to create value. When the mergers/acquisitions were examined after the fact, it was determined that only 37% actually created value.

Entrepreneurs are subject to overconfidence (excessive optimism and better than average effect). In spite of only a 20% success rate, entrepreneurs tend to be very optimistic about their chances of success.