

Focusing on your financial goals/Spring 2007

Wealth Management



Risk management

How investors can use knowledge and strategy to manage the risk inherent in any portfolio

Research

The impact of climate change will go far beyond simple changes to weather; it will significantly alter the outlook for many of our investment decisions

Tax strategies

Looking at tax strategies for both sides of your balance sheet

Knowledge

Whether a stock offers fair value depends on the earnings outlook and interest rates





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Comments?

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To our clients,

At UBS, helping our clients build an investment portfolio not only requires that we understand your needs and objectives, but also that we propose investment opportunities designed to address your individual needs, implement the agreed upon solutions, and review them on a periodic basis. Within this investment process, managing risk is a primary consideration.

In this issue of *Wealth Management* magazine, we address risk management and the importance of matching your risk/return objectives with your wealth management needs. We also look at the impact of climate change on the investment environment and provide a blueprint for considering the risks and opportunities. Tax strategies and other valuable topics are featured in this magazine as well. I encourage you to take the time to discuss the items featured here with your UBS Financial Advisor.

The decisions you make as you chart a course for your financial future are met with a commitment from us to act on your behalf. You need to have confidence and trust in your wealth management provider. We focus on listening to you and understanding your needs, offering appropriate solutions and putting them into action. As your life or needs change, we will then take the time to re-examine this strategy. It is the foundation for the relationship we call “You & Us.”

Sincerely,

Marten Hoekstra
 Head of Wealth Management US



Investor attitude towards the financial markets was marked by buoyancy at the close of last year.



Euromoney survey: UBS again the world's best private bank

UBS has been named as "Best Global Private Bank" in *Euromoney's* benchmark annual survey of the global private banking industry, winning the survey for the fourth consecutive year.

UBS also received top rankings for a wide range of services and market segments such as high net-worth and ultra high net-worth, equity and fixed income portfolio management and inheritance and succession planning.

In the regional categories, UBS won best private bank in Asia, Western Europe and Latin America, in addition to numerous other top honors.

In its January edition, the magazine praised UBS, which "through acquisitions and aggressive expansion, has succeeded in building up a presence across the globe and rolling out its holistic wealth management solutions to the broadening needs of high net-worth clients."

The *Euromoney* survey is based both on peer reference and on information provided by UBS. Through peer nominations, *Euromoney* identifies the companies that are recognized by competitors and industry players as being exceptional in specific categories of client and product segment.

For our clients, being awarded the top prize means UBS once again positioned itself apart from the competition by continuously perfecting the client experience and setting the industry benchmark in wealth management.

Investor optimism remained buoyant as 2006 came to a close

Investor optimism held steady at one of its highest levels for 2006 at 90, according to the December 2006 UBS/Gallup Index of Investor Optimism, a poll of investor attitudes. The Index declined just three points from its level of 93 in November 2006, but remained higher than during nine of the twelve months of 2006. The Index is conducted monthly and had a baseline score of 124 when it was established in October 1996.

Investors are increasingly bullish on the financial markets, with two in three investors (67 percent) feeling confident in the financial markets. This is the highest percentage of investors feeling this way since February 2004.

The Personal Dimension, which measures people's optimism about their own portfolios over the next 12 months, increased one point to 69 in December 2006—up 15 points since August (54). The Economic Dimension, which measures people's optimism about the economy over the next 12 months, decreased four points in December to stand at 21, down from 25 in November but far above the -1 of August. This suggests that investors as a whole have gone from being essentially neutral on the economy this past summer to being somewhat optimistic about the economic outlook over the next 12 months as 2006 came to a close.

These findings are part of the 105th Index of Investor Optimism, which was conducted December 1–17, 2006.

For this study, the American investor is defined as any person who is head

of a household or a spouse in any household with total savings and investments of \$10,000 or more. Nearly 40 percent of American households have at least this amount in savings and investments. The sampling error in the results is plus or minus four percentage points.

Launch of Ohio Community Affairs Program

UBS is embarking on several new initiatives in Ohio by collaborating with prominent organizations in Cincinnati and Cleveland. The initiatives will address pressing needs in the community, such as providing under-served youth with after-school, in-school and summer activities focusing on arts education, cultural awareness and financial literacy.

The programs for Cincinnati include:

- **Artworks—Youth Mural Arts Program.** The Firm has partnered with ArtWorks to launch a mural arts program for Cincinnati in collaboration with the mayor's office. Through this program, groups of youth will be paired with professional artists to create murals for several prominent neighborhoods.
- **YMCA of Greater Cincinnati—UBS ArtBus.** This is a partnership with the YMCA of Greater Cincinnati's CincyAfterSchool to facilitate increased school-based arts programming. UBS will fund the UBS ArtBus, which will



UBS is actively sponsoring youth programs in Ohio.

bring various arts projects to the CincyAfterSchool Centers, providing arts education to youth and their families.

- **National Underground Railroad Freedom Center—UBS Scholars Program.** This collaborative and community-based initiative is designed to enhance pathways for increasing youth leadership and economic empowerment, while reinforcing volunteer efforts of Greater Cincinnati youth and UBS employees. Students will participate in workshops to learn about slavery and the underground railroad, attend the annual youth conference and participate in a program to teach basic budgeting, credit and money management skills.

Cleveland will see:

- **UBS Summer Art in the City.** A two-year, neighborhood-based project designed to offer free, hands-on arts engagement during the summers of 2007 and 2008.
- **Cleveland School of the Arts.** UBS will help support the school in developing a new art library, upgrading its technology labs and hiring visiting artists who will provide promising students with professional instruction.

We are excited about the impact these programs will have on our communities.

UBS unveils plan to open 10 ultra high net worth offices

The Firm recently unveiled an ambitious growth plan for its U.S. wealth management business. We plan to open five new ultra high net worth offices this year and five more next year in North America. On the agenda for 2007 are offices in Stamford, Atlanta, Chicago, Los Angeles and San Francisco. The additional locations planned for 2008 include Boston, Houston, Philadelphia, Seattle and San Jose.

UBS' first ultra high net worth office opened in New York City in the summer of 2006.

UBS and THE PLAYERS Championship

UBS is looking forward to its third year as a Proud Partner of THE PLAYERS Championship. Widely considered to be professional golf's "Fifth Major," the Championship features the world's top-ranked golfers competing on THE PLAYERS Stadium Course at TPC Sawgrass in Ponte Vedra Beach, Florida. The Championship is scheduled for May 7–13.

Several changes have been instituted this year to further cement THE PLAYERS "Fifth Major" status. The broadcast will now feature a limited commercial interruption format similar to other majors and advertising will be exclusive to the Championship's three Proud Partners (UBS, PricewaterhouseCoopers and JELD-WEN). Please see the broadcast tune-in times below. Other exciting changes include improved course conditions and a new clubhouse, as well as a date change from March to May.

Also in 2007, UBS will build on the success of last year's UBS 17th Challenge at TPC Sawgrass by bringing the event to Rockefeller Center in New York City from May 4 to May 13 with a scaled replica of the Stadium Course's famed 17th hole.

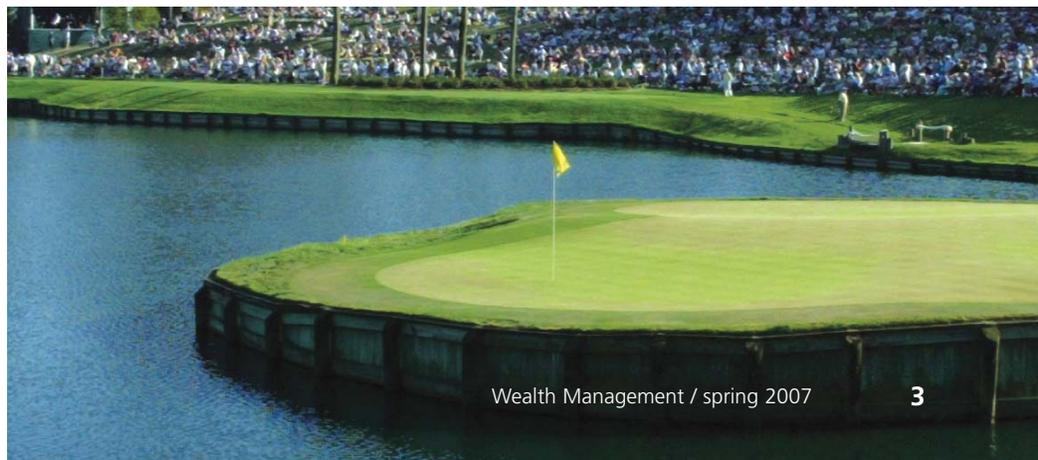
Tune-in Schedule:

The Golf Channel

- Thursday, May 10:
12:00 p.m.–6:00 p.m.
- Thursday, May 10:
8:00 p.m.–11:00 p.m. (re-air)
- Friday, May 11:
12:00 p.m.–6:00 p.m.
- Friday, May 11:
8:00 p.m.–11:00 p.m. (re-air)

NBC

- Saturday, May 12:
2:00 p.m.–7:00 p.m.
- Sunday, May 13:
2:00 p.m.–7:00 p.m.



The famed 17th hole on THE PLAYERS Stadium Course.



Keeping risk in mind

Behavioral finance offers important lessons for risk managers by considering how investors experience loss, says Professor Thorsten Hens

He who dares wins, but not all the time. Attractive returns cannot be earned without taking on risk; but, in doing so, investors expose themselves to the danger that they might lose their capital. This is where risk management comes in. It can help keep risk within acceptable boundaries.

Psychological research into the perception of risk reveals two types of mistakes that can upset the calculations of private investors. First, investors can fall into psychological traps and so enter into unnecessary risks. Secondly, psychologists have found that traditional risk management does not measure risk in the way that investors experience it. Risk management focuses on keeping portfolio volatility, changes in value up or down, in check, while most investors are disproportionately concerned about losses.

Diversification has always been central to risk management. As far back as the Talmud, we have been urged not to put all our eggs in one basket. These days, however, we have sophisticated mathematical models designed to keep risk to a minimum for a given level of return.

However, research suggests that investors have difficulty accepting the idea of diversification. Instead of diversifying according to mathematical criteria, they take an intuitive approach to portfolio composition. As a result, investors tend to weight all positions equally within their portfolios, allocating too much to investments which perform similarly and not efficiently diversifying. It would be better to weight the investments according to the investor's risk profile. If investors divide their portfolio into equities or bonds, their choice of allocation will differ depending on how far, for example, the equities portion is broken down into subcategories. If they are given a choice simply of equities and bonds, they will put less into equities than if the equity allocation is further subdivided into domestic and international equities. This reflects the tendency for investors to equally weight all categories under consideration, a habit known as the "splitting bias."

Another reason why investors often do not diversify adequately is that they practice mental accounting. They are used to making a clear separation between their careers, families and hobbies in everyday life, and carry this form of mental accounting across to their finances. For instance, they might have three portfolios, one for bonds, one for equities and one for alternative investments. The mistake they make is to run a separate mental account for each and strive to avoid losses in each

Thorsten Hens is Professor of Financial Market Economics at the University of Zurich's Swiss Banking Institute and Professor of Finance at the Norwegian Business School in Bergen. In researching how investors make their decisions, Hens draws on work in psychology (behavioral finance). He also applies insights from biology to understanding the dynamics of financial markets (evolutionary finance).





Rebalancing to keep asset allocation consistent is an important maneuver in risk management.

Investors should divide up their portfolios by asset class, according to their risk profile, and keep this allocation consistent over time

account. This can hinder performance at the overall portfolio level. Returns may improve where investors consider the portfolio holistically, accepting that losses may occur in one sub-account while expecting compensating gains in another.

In addition, many investors spread their portfolios between too few stocks and do not include enough international diversification in their portfolios. This prejudice is known as “home bias.”

Finally, some investors fail to select their stocks clinically according to risk-return characteristics. Instead, they pick those with the most exciting success stories. Researchers call this the “attention bias.” Such stories can often be deceptive and attention-grabbing, but actually containing little information of value.

Rebalancing the portfolio

Investors should consider dividing their portfolios by asset class, according to their risk profile, and keep this allocation consistent over time as long as their objectives stay the same. If equity markets boom, swelling the equity allocation as they go, then investors should rebalance their portfolios by selling shares. Similarly, investors should buy more shares to restore the original balance if they have suffered losses. This means acting in an anti-cyclical way, buying more shares when they are cheap and selling them when they are expensive.

In practice, however, it is psychologically difficult to achieve this rebalancing. Many studies have shown how investors are over-hasty in extrapolating trends. In the throes of cognitive biases such as trend chasing, our emotions can override any amount of hard-headed calculation. Gains bring satisfaction, happiness or even euphoria, raising risk tolerance. Losses bring uncertainty, fear and frustration, which reduce our willingness to bear risk. Consequently, investors tend to act in a pro-cyclical way.

Emotional investors even adjust their portfolios after successes and disappointments that have nothing to do with the financial markets as they allow their moods to dictate their risk behavior. A mix of delusion and emotion led the investors at a U.S. online brokerage to turn over three-quarters of their assets each year—more than would likely be rationally needed, and incurring higher costs along the way.

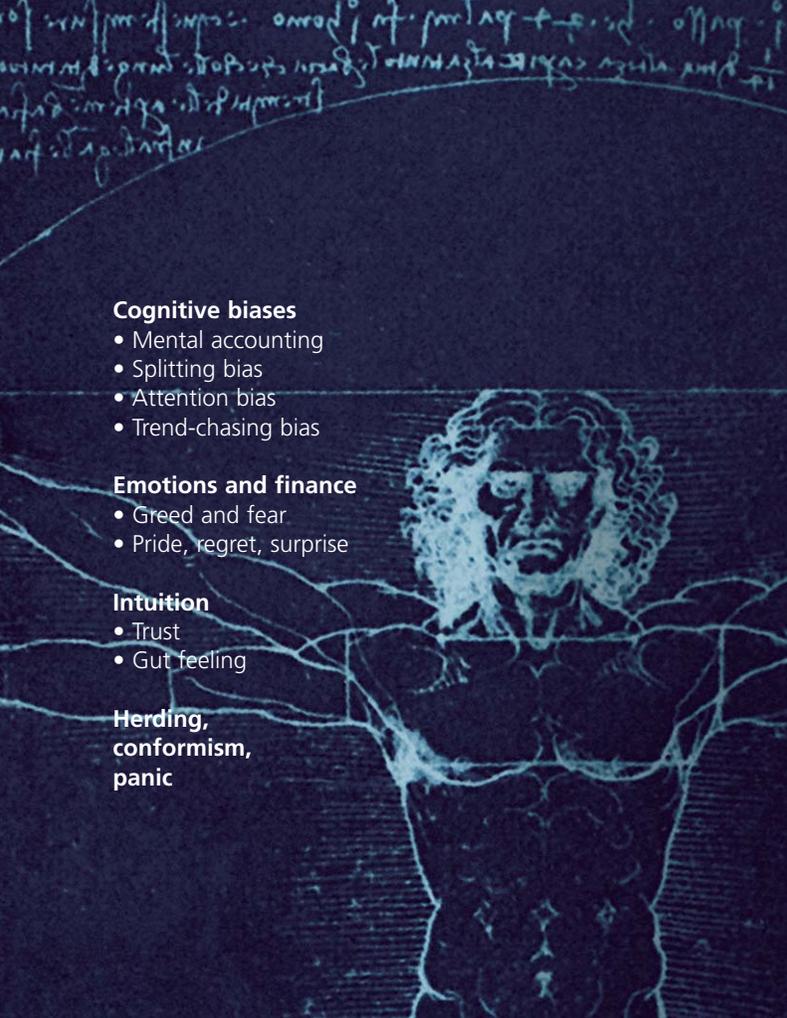
Measuring risk

Benjamin Graham, the father of fundamentals-based equity analysis, declared 80 years ago that investors are their own worst enemy. He was only partially right. Investors do indeed make psychological mistakes, but good risk management can help avoid most of them.

The problem remains, however, that risk management often concentrates on risk metrics that are unsuited to investors.

So how can risk be measured? This requires asking, first, how frequent losses are likely to be, and, secondly, how severe. Volatility has been the conventional measure of risk ever since Harry Markowitz first expounded his modern portfolio theory in 1952, but it is unsuitable for many investors. Volatility is defined as how far a value deviates from the mean, regardless of whether this deviation is positive or negative. But such a measure depends on whether the investment in question delivers a return that conforms to the statistical model of normal distribution, in which case deviations to the upside and the downside are similar. What’s more, extreme deviations from the expected return typically do not occur. In reality, the normal distribution model approximates very poorly with stock and bond returns and even less well to those of commodities, hedge funds or real estate. Most investors would be ill-advised to solely use volatility as a guide when deciding on their allocation to alternative investments, given that the risk of extreme events is underestimated by this measure.

Psychological risk researchers have therefore come up with an alternative to volatility that originated in the nuclear power debate, of all places. During the 1960s, physicists convinced their governments of nuclear energy’s favorable risk-return profile, but these governments could not understand why most of the public took a different view. The U.S. administration asked scientists at Carnegie Mellon University to investigate this discrepancy. What they found was that the way physicists measured risk was different from the approach taken by the general public. The physicists were prepared to accept the risk of a nuclear disaster, provided it was unlikely enough. The general population, on the other hand, envisaging what might happen in such an event, allowed the severe consequences to overshadow the small likelihood that they would actually occur. This overweighting is one of the cornerstones of the psychological risk research into prospect theory developed by Nobel laureates Daniel Kahneman and Amos Tversky.



Cognitive biases

- Mental accounting
- Splitting bias
- Attention bias
- Trend-chasing bias

Emotions and finance

- Greed and fear
- Pride, regret, surprise

Intuition

- Trust
- Gut feeling

Herding, conformism, panic

Mapping the investor

Not all psychological patterns of behavior have negative effects. Many investors like to rely on their gut feeling, or intuition, and often this is not a bad guide. Intuitive feelings tend to be based on facts that are observable over the long run, rather than on short-term news. This means that intuitive investors avoid too much turnover in their portfolios.

Regardless of intuition, almost all investors, particularly in turbulent times, tend to fling all other considerations to the winds and run with the crowd. This herding is the biggest cause of speculative bubbles in the financial markets, which inflate and burst around every three to four decades (1843 to 1846, 1870 to 1873, 1923 to 1929, 1963 to 1967 and 1996 to 2000).

Overreacting to losses

The other, equally important element of this theory is that investors typically pursue a concrete investment objective with their portfolio. If they fall short of this target, they regard this as a loss, while any return over this threshold is seen as a gain. However, investors do not look at losses and gains of the same amount in an equal light, as the concept of volatility presupposes. In reality, investors have twice the emotional reaction to losses. For many, it would take a profit of at least \$200,000 to make up for a loss of \$100,000. Consequently, many people are prepared to pay more to protect their capital than their attitude to price fluctuations would suggest. That is where widely used structured products with capital protection come in.

Kahneman and Tversky's psychological risk measure links the overweighting of small probabilities to risk perception. And, unlike volatility, this psychological risk measure is not the same for all investors but is a characteristic of the individual investor; each investor decides individually how concerned they are about unlikely events and how much they would be hurt by losses.

The differences between investors go so far that some become positively risk-loving once they have incurred a loss. Rather than resigning themselves to a certain loss, they are apt to raise their stakes in the hope of clawing their way out of the red.

For all these reasons, practitioners of modern risk management need to take account of psychological research. Their work must be grounded in good knowledge both of the markets and investor psychology. They should also stay aware of the psychological traps that lie in wait for investors during the ups and downs of the financial markets and learn to apply the risk measures that really count for investors. /

International investing presents certain risks not associated with investing solely in the U.S., such as currency fluctuation, political and economic change, social unrest, changes in government regulations, differences in accounting and the lesser degree of accurate public information available.



Conveying the meaning of risk

Financial Advisors take a systematic approach in determining investor attitude to risk.

Parachuting? Silvan Schriber shakes his head. There is already quite enough risk in the everyday life of this Financial Advisor, who looks after executives and entrepreneurs. “People who go in for extreme sports are generally aware of the risks involved but this is seldom the case with investors,” says Schriber. Frequently, large amounts are invested in just a few stocks and bonds, leaving investors unwittingly exposed to large concentrations of often unnecessary risk. The 34-year-old doctor of economics sees it as his mission to analyze people’s attitudes to risk and open their eyes to the nature of financial exposures.

Schriber first encountered investment risk as a student. He learned then that risk is measured in terms of volatility as the positive or negative deviation from an expected value. In real life, it is the negative deviations, that is to say the losses, that concern investors. Psychology plays a major part since risk can, to some extent, depend on how you look at things.

In his doctorate, Schriber looked at the way asset managers communicated risk to investors. The way he saw it, financial advisors can only set up an effective dialogue if they understand how their clients deal with risk. And this is precisely what he has set out to do in his professional career. With a view to enhancing risk communication, Schriber uses a two-stage risk profiling approach consisting of client and portfolio risk profiles. “A few questions give us a picture of our client’s attitude to risk,” says Schriber. “And the client can see exactly how we put together the risk profile.”

There is much to be said for this approach, and Schriber says it: “Our advisory philosophy is geared toward first understanding clients as a whole, including how they view risk. We then define specific objectives for each set of assets.” The approach serves as the basis for discussion, rather than as a substitute for it. “The only way to find out what risk means to an investor is to talk to that person. Our methodology gets that discussion under way.”

Getting to know your risk profile

If financial advisors fail to take a systematic view of a client’s risk profile, they often look solely at the money to be invested. Schriber cites the example of a young doctor who inherited \$300,000. The doctor had a friend who was an asset manager, who recommended that she invest her inheritance in a top-performing Asian investment. After all, the asset manager remarked, the doctor was still young and could cope with sizeable ups and downs in investment performance. But the asset manager had failed to understand the overall situation. He didn’t know, for example, that the doctor had already invested in another equity investment with Asian exposures run by another financial institution. On top of this, he was unaware of the doctor’s plans to set up her own practice and build a house, plans that would require a certain amount of ready funds.

Investors expose themselves to considerable hazards if they make decisions without first getting to know their own risk profile and the risks they face. Investors without this understanding are apt to take on excessively risky investments and then panic if the markets behave unexpectedly. Take the example of a young couple who run an advertising agency. The couple’s income can vary considerably depending on the flow of business. They have a costly lifestyle and own two vacation homes in addition to their own home. Financing is tight. The husband regularly deals in equities, primarily tech stocks. But what would happen if share prices fell or business

dried up? What would happen if they had children? These are the type of questions Schriber asks. “If investors take on too much risk, it’s my job to point out what could happen.”

Risk-averse to risk-loving

An investor’s attitude to risk can change over time. Schriber tells the story of a risk-averse elderly lady who started out with a bond portfolio. As stock markets continued to strengthen in the 1990s, however, she began to increasingly invest in equities. It was difficult to hold her back, since the initial successes convinced her she was on the right track. Until share prices started to falter. The scenario is always the same: “When the stock markets are on the up, people are more willing to take on risk. When markets are falling, investors’ risk tolerance also drops.” Financial advisors should try to paint a very concrete picture of risk to help their clients understand how risk feels. For example, ask their clients to consider an investment that could have the potential to fluctuate between minus 20 percent and plus 20 percent. “We ask our clients to imagine that, in a year’s time, their fund is worth only \$80,000 instead of \$100,000, and show them what that would mean for them personally. Our job is to put such issues on the table, even if they are tough.” /

Silvan Schriber is part of the Executives & Entrepreneurs team at UBS Global Wealth Management & Business Banking.





The risks and opportunities of climate change

The following excerpt from the UBS research focus report, *Climate Change: Beyond “Whether,”* looks at the investment risks and opportunities of climate change.

Wherever one may stand on the issue of climate change is largely irrelevant to the investment thesis that a changing climate will affect the world’s business and investment environment. The numerous policies and regulations designed to combat the threat of global warming are converging to influence people’s behavior, alter the risk profile of various businesses and improve the investment outlook for others. Such policies will likely encourage widespread shifts in consumption and industry behavior that will have important investment implications, both in terms of risks and opportunities.

Evaluating the investment risks and opportunities of climate change

Investment strategies based on climate change criteria may not necessarily produce higher expected future returns, compared with strategies based on other factors. Nevertheless, investment strategies of all types will need to consider the impact of policies and forces related to climate change and their effect on the future business and regulatory environment. This will increase the risk profile for some sectors and companies, while providing significant growth opportunities for others.

In some instances, corporations are adjusting their behavior in advance of expected policy changes and regulation. In others, investors are discovering ways to account for the implications of climate change within their investment process. This involves directing capital to, and promoting the development of, businesses that contribute to mitigating climate change, while spurning investments in companies that are the most culpable.

Policy and regulatory environment

For three reasons, the future regulatory framework is the most important driver for mitigating climate change and, consequently, for determining a potential investment strategy:

- **Increasing greenhouse gas concentrations are the result of market failures.** Generally speaking, greenhouse gas emissions do not incur a cost. External environmental costs must be internalized via regulatory change to become a material driver of corporate decisions.
- **Few cost-competitive alternatives to fossil fuels.** Many renewable energies and energy-efficient

technologies and services are not yet cost-competitive when compared to energy from oil, natural gas and coal. If external costs, such as the costs of environmental degradation and future damage from climate change, were included in the price of fossil fuels, renewable energy sources would become more cost-competitive.

- **High national strategic importance of energy.**

A secure and abundant supply of energy is a widely shared national priority. Encouraging the use of domestic energy supplies and alternative energy sources to reduce dependency on foreign energy sources usually manifests itself in the policy realm.

Industry exposure

In assessing the sectors potentially most affected by climate change, one needs to distinguish between direct and indirect greenhouse gas exposure, and identify industries that have physical, or operational, exposure to climate change.

Direct exposure. The industries and sectors with direct carbon exposure are those that produce large greenhouse gas emissions as a result of their processes. Companies in the utilities sector and in certain industrial sectors (e.g., chemicals, cement and steel) have the largest direct carbon dioxide emissions and thus potentially the largest direct carbon liabilities. Other regulations, such as emission caps and technical standards, attempt to directly control greenhouse gas emissions from point sources, although they may not be the most cost-effective options. To limit the cost impact of regulations, industries that emit greenhouse gases can invest in low-carbon technology, trade emissions rights, invest in offset projects and lobby to block or challenge regulation. Companies with low greenhouse gas exposure within a particular polluting industry are in a relatively strong position.

Indirect exposure. Companies that have an indirect exposure to carbon risk either manufacture products that emit greenhouse gases during their use or offer services that are affected by greenhouse gas regulations. The most prominent example is the automobile industry, whose products are responsible for almost 10 percent of global greenhouse gas emissions. Companies active in the construction of private houses and commercial buildings or in the manufacturing of electronic devices are also responsible for indirect greenhouse gas emissions when the final products are in use. The oil and gas sector is responsible for a large share of direct greenhouse gas emissions through mining, refining and distribution operations, but is primarily an indirect emitter of greenhouse gases.

These sectors are exposed to carbon risk via changing consumer demand, which is motivated by a mix of internalization of macroeconomic costs of greenhouse gas emissions, rising prices of fossil fuel energy sources and enhanced environmental awareness. In addition, companies manufacturing greenhouse-gas-intensive products may also be directly affected by greenhouse gas regulations.

Sectors with direct greenhouse gas emissions from large point sources bear the highest regulatory risks, as these sources are most easily monitored and controlled. However, most of the large industrial point sources have limited ability to adapt and are increasingly located in developing countries, which are not obligated under the Kyoto Protocol to reduce emissions. Furthermore, many of these activities are involved in primary economic production of goods that are at the very foundation of our economy and have no perfect substitutes, such as cement, steel and food. Therefore, effective climate change policies may also need to target the sectors with high indirect emissions and high ability to adapt. In these sectors, such as road transport, buildings and utilities, reductions in greenhouse gas emissions are the most cost-efficient from a macroeconomic point of view.

Physical exposure. Sectors whose operations depend on climate conditions have a high level of physical exposure, as do sectors whose operations would be interrupted by extreme weather events. Examples include agriculture, fisheries, forestry, water utilities and water-intensive operations, but also tourism, healthcare, insurance and operations sensitive to storms, such as offshore oil drilling. The ability to adapt to a changing climate also varies between sectors. For example, the insurance industry may adapt to changing weather conditions by modifying policy pricing, whereas a ski resort that does not have the capacity to receive or generate snow will have to drastically change its business model. Impacts of physical climate change will be felt for a long time. However, estimating the physical impact of climate change involves a high level of uncertainty.

Evidence of the severity of this increased risk is apparent in insurance company issuance of catastrophe bonds to hedge against the risk of weather-related natural disasters. For example, insurance companies that underwrite real estate and other property in flood zones are issuing catastrophe bonds more frequently. This increased risk is also evident in the use of insurance and weather-related structured products among ski resorts and oil and gas distributors.

Corporate exposure

Companies within a particular sector will have different abilities to respond to climate change regulations.

Deriving direct buy and sell recommendations for a whole sector on the basis of carbon exposure is difficult; it is far easier to identify companies according to their relative exposure to climate change risks and mitigation opportunities, given wide differences in greenhouse gas emissions, potential for emission reductions and competitive positioning towards tighter regulations.

Risks related to climate change. Qualitatively speaking, companies scoring poorly compared to their peers (due to high emissions, high regulatory exposure, limited emissions reduction potential and an inadequate corporate climate change strategy) have a higher risk of being negatively affected by carbon regulations, which could lead to higher stock price volatility, lower returns and, in extreme cases, credit default.

Opportunities related to climate change mitigation.

The opportunities related to climate change mitigation are generally clustered into two categories: improving energy efficiency and increasing the use of low- and no-carbon fuels (see Figure A below). Along with further regulation of greenhouse gas emissions and political support for technologies and services to mitigate climate change, above-average growth opportunities will likely emerge for several companies.

Financial products

Investors seeking to incorporate specific investment strategies that take into account risks and opportunities derived from climate change have a number of available options that span a wide range of asset classes (see Figure B, next page).

Figure A—Summary of sample opportunities related to climate change mitigation

Energy efficiency	
Building	Investment area
Thermal insulation: the entire European Kyoto Commitment could be achieved with improved insulation; large potential exists in old buildings; more stringent building legislation and increasing energy prices will drive further investment in this area.	Producers of insulation materials, high performance windows and window frames.
Lighting: a conventional light bulb wastes more than 90% of its energy as heat; light emitting diodes produce virtually no heat.	Producers of light emitting diodes (LED), fiber optics, and compact fluorescent light bulbs.
Heating, cooling, and ventilation: large potential for integrated systems that are adjusted to needs in new buildings; systems would also have applications in older buildings.	Integrated systems for heating, cooling and ventilation; facility management with focus on energy efficiency; energy contracting; metering devices; IT solutions for intelligent energy management.
Household and electronic goods: electronic appliances constitute an increasingly large share of household electricity use.	Energy efficient appliances, such as washing machines, refrigerators, and other electronic appliances with built-in power management systems.
Transport	
Investment area	Investment area
Lightweighting: lightweighting makes sense from a resource/energy use perspective, as well as from an economic point of view; applications are crucial for transportation, but also energy generation (for example, wind) and consumer products.	Carbon fiber, composite materials (carbon fiber, glass fiber), lightweight solutions for aluminum, magnesium, titanium, plastics.
Drive trains: large efficiency improvement potential exists in conventional engines, as well as in alternative drive train technologies.	Automotive suppliers with innovative technologies, leading car manufacturers, fuel cells.
Technology and electronics: systems that help to make traffic flow more efficient are an important element of more sustainable transportation concepts	Global positioning systems; highway traffic management systems; providers of real-time traffic information.
Electricity production	
Investment area	Investment area
Combined heat and power: combined heat and power doubles energy efficiency, as it makes use of both electricity and heat. This makes the technology very cost competitive. The trend to more liberalization of electricity markets will support further penetration of this technology.	Independent power producers.
Industrial processes and materials use	
Investment area	Investment area
White biotechnology: industrial biotechnology can contribute to making industrial processes more efficient by developing new products with reduced environmental impact and energy use, and by offering products that reduce their customers' energy use.	Pure-play industrial biotechnology companies, especially enzyme producing companies (one high potential area: enzymes for producing second-generation biofuels).

Equity-related strategies include underweighting sectors, industries and companies that are highly carbon intensive and have little potential to adapt. In addition, there are opportunities, in our view, to directly benefit from climate change mitigation by investing in companies exposed to renewable and low-carbon energy production and energy efficiency. Investors can target theme funds focusing specifically on climate change mitigation, as well as a range of equity baskets, certificates and indices on specific investment areas, such as white biotech, photovoltaics and biofuels. Investors may also access unlisted renewable or energy efficiency companies by investing in the growing number of venture capital firms and private equity funds focused on environmental technology.

Within the fixed-income markets, investors can reduce their exposure to companies that face heightened credit risk because of future policy measures and unhedged exposure to severe weather events, such as hurricanes and floods. On the opportunities side, governments and project development companies are issuing renewable energy bonds with increased frequency to finance specific clean energy projects.

Applying the investment framework

Climate change is a complex force with myriad investment implications, some of which are apparent now, but many of which may not be apparent for decades. Making investment decisions based on climate change criteria is difficult because of the limited financial product range and available information. That said, the financial product universe is broadening and the pressure on companies to disclose information relevant to climate change and emissions is increasing.

The risks brought on by future climate change events on companies and industries include heightened regulation, increased impairment of physical property, loss of revenues, erosion of reputation or some combination of all of these risks. In the event that the business-as-usual energy scenario continues to predominate, investors

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The research reports may include estimates and forecasts. A forecast is just one element of an overall report. Differences may sometimes occur between the WMR and Investment Research reports with respect to interest rate or exchange rate forecasts due to differences of opinions. The analysts who prepare the WMR and Investment Research reports use their own methodologies and assumptions to make their own independent forecasts. Neither the WMR forecast nor the Investment Research forecast is necessarily more reliable than the other.

The various research content provided does not take into account the unique investment objectives, financial situation, or particular needs of any specific individual investor. If you have any questions, please consult your Financial Advisor.

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Figure B—Climate change portfolio considerations

Equities	<ul style="list-style-type: none"> • Portfolio screening • Thematic funds • "Green" hedge funds 	<ul style="list-style-type: none"> • SRI funds • Renewable energy and efficiency stocks • Certificates
Bonds	<ul style="list-style-type: none"> • Portfolio screening • Renewable energy bonds 	<ul style="list-style-type: none"> • SRI funds
Private equity/ Venture capital	<ul style="list-style-type: none"> • Environmental venture capital 	
Real Estate	<ul style="list-style-type: none"> • Improved energy efficiency within property portfolio 	
Helping Instruments	<ul style="list-style-type: none"> • Insurance • Catastrophe bonds 	<ul style="list-style-type: none"> • Weather derivatives • Emissions indexes
Others	<ul style="list-style-type: none"> • Carbon funds 	

Source: UBS

would be best served by reducing the direct physical risks that climate change will likely have on their portfolio.

The more incentives that emerge to encourage people to limit greenhouse gas emissions, the greater the outlook for investment opportunities related to climate change mitigation. If investors believe that climate change is an important enough issue, they can immediately and directly alter not only their investment portfolio, but also their lifestyle and behavioral choices. In our view, it is the prospect of individual behavior proliferating on a large scale, combined with more stringent regulation of greenhouse gas emissions, that makes the opportunities related to climate change mitigation a compelling investment case.

A complete copy of the UBS research focus report "Climate Change: Beyond Whether" is now available and may be a good source of information for future portfolio review discussions. If you would like a copy of the report, please contact your Financial Advisor. /

Unlocking nature's secrets

Martina Hirayama is using nanotechnology to discover smart materials that improve the quality of our lives.

A journey into the nanocosmos begins in the mind. Imagine the earth, revolving on its axis in the vastness of space. Now picture a hazelnut alongside the giant orb of planet earth. This should give you some idea of the scale at which nanoscience operates. Nanoscience deals with atoms, the building blocks of every material. They are so small that you could fit billions on the head of a pin.

It is in this miniscule world of the nanoparticle that Dr. Martina Hirayama is conducting her pioneering research. Hirayama is head of industrial chemistry at the Zurich University of Applied Sciences Winterthur, where she and her team are among the world leaders in the field of surface and interfacial polymers. Under her direction, nanotechnologists are joining together individual atoms to create tiny molecules, which are then coated onto various materials in nanometer-thin layers. Their goal is to develop new coatings for industrial materials with better and more practical properties for the user. In the laboratory, nanoparticles can also be given an ultra-thin coating and incorporated into synthetics, producing materials with new and exciting mechanical, optical and electrical properties.

Learning from nature

“We are trying to understand how entirely natural processes in the environment around us work, and how we can duplicate them for industrial purposes,” explains Hirayama. To illustrate her point, she describes the so-called lotus effect: “Lotus leaves always stay clean and dry, even when it rains, because the structure of the leaf’s surface repels droplets of water and particles of dirt.” By examining such a leaf under a scanning electron microscope, scientists can see how this is possible. The lotus leaf’s very fine surface is coated with hydrophobic wax crystals roughly one nanometer in diameter. This structure causes water droplets falling onto a lotus leaf to bead up and roll off, picking up small particles of dirt along the way. The droplets of water never actually come into contact with the surface of the leaf itself, only the top

of the nanoparticles. Since it was discovered, the lotus effect has been used in a whole range of products, from self-cleaning exterior paint to dirt-resistant ceramic tiles.

Hirayama is harnessing the effect in her own area of expertise, monomolecular polymer coatings. “A very thin layer is enough to give a surface a durable coating of the properties we’re looking for. I find that absolutely fascinating,” she says.

Secrets revealed

Hirayama is clearly passionate about her work and fascinated by even the most apparently simple topics. For her doctorate in 1997, for example, she examined what makes adhesives stick. It was during that research that she discovered—purely by chance—how ultra-thin coatings can be applied directly to various surfaces. This discovery enables any material (wood, metal, glass, paper or textiles) to be coated in a way that does not impair the underlying material’s capacity to breathe or have any unwanted side effects such as gloss or discoloration. “As so often in science, meticulous investigation paid off,” she recalls. “Instead of discarding what looked at first glance like an unsuccessful series of tests, we asked ourselves how we could put the results to practical use.” Together with her research colleagues at the time, Hirayama—who also studied business management alongside her doctorate—founded Zurich-based Global Surface AG. Today, the licensees of the company’s patent include major international firms, and the patent itself seems almost limitless in its applications. Indeed, the process Hirayama’s company has patented is used in everything from protecting porous construction materials for the façades of buildings and making wooden surfaces water-repellent to preparing printing plates for waterless offset printing. The process is reliable and durable, although no one can say for certain how or why it works. “The fact that there is still so much to explain and discover is what makes nanotechnology so exciting,” says Hirayama.

Martina Hirayama (pictured here in front of a sculpture by John Chamberlain) develops intelligent coatings for industrial materials. Like Chamberlain, she is fascinated by the structure of surfaces.





Nanotechnologists use the surface structure of the lotus leaf (far left) as inspiration for water-repellent coatings. Research into the formation of calcium crystals (pictured center and right) help them to develop calcification-resistant coatings.

Across the globe, nanotechnologists are striving to unravel nature's mysteries and put the knowledge they acquire to technical use. Unlike nature, however, the scientists are able to work under artificial conditions such as extreme purity, heat and cold or in a vacuum. This enables them to develop materials with surprising and enduring properties. A science of the future, nanotechnology is set to influence all aspects of our daily lives from medicine to computer technology and space research. As it becomes part of the fabric of everyday life, there is little obvious change. Everything simply becomes that bit smarter. Windscreens and the lenses in our glasses can be made scratch-resistant; Light Emitting Diodes (LEDs) in car brake lights have sophisticated layer systems which are highly efficient at converting electricity into light. Modern cosmetics protect the skin against the harmful effects of ultraviolet radiation, all thanks to nanotechnology.

Nanotechnologists have a vision of a world in which quantum computers open up a whole new realm of mathematical possibilities, transferring data at the speed of light. Who knows, one day it may even be possible to produce electricity cleanly and cheaply using thin-film thermoelectric technology, or to replace fossil fuels with hydrogen from renewable sources. But it is in the field of medicine that nanotechnology holds, perhaps, the greatest promise. The technology could be used to deliver high-dosage drugs directly to an affected area of the body without any adverse effects on the patient.

Wonders of nature

Hirayama and her team are currently working on the phenomenon of calcification. That is, ways of preventing calcium deposits by using smart coatings. Calcification is a problem that affects industry and households alike: "To solve it, you have to look at what properties a surface needs in order to avoid becoming calcified," she notes. With that in mind, Hirayama has her researchers looking at subjects including mussels, whose shells are made up almost entirely of calcium carbonate. "The ability to control crystallization is vital, whether it's shell growth in mussels or preventing the formation of chalky deposits.

There is so much we can learn from nature," she says. Indeed, Hirayama notes, nature still beats nanotechnology hands down. The gecko is a prime example. This diminutive lizard is able to scale any wall and even hang upside down from the ceiling by one foot. The gecko owes its amazing climbing skills to the nanostructure of its feet, which are covered in fine, smooth hairs that allow them to reach within a few nanometers of any given surface. "We can explain this glue-like effect but we have yet to mimic it. The perfection of gecko locomotion remains beyond our grasp for now," Hirayama acknowledges.

Time and again, nanoscientists are inspired and helped in their groundbreaking discoveries by plants and animals. The nocturnal squid *Euprymna scolopes*, for example, lives in symbiosis with luminescent bacteria, whose light it beams down into the ocean below with the aid of special proteins known as reflectins, thus dazzling any potential predators. Today, Europe's state-of-the-art XMM-Newton space telescope works along very similar lines, collecting the X-rays of distant astronomical objects using gold-plated mirror shells nested one inside the other. This X-ray multi-mirror telescope is a masterpiece of nanotechnology.

Hirayama also draws inspiration for her work from the world beneath the waves. One research project currently underway at the Zurich University of Applied Sciences Winterthur is looking at the formation of ice crystals on surfaces. "We know there are fish in the Arctic that have special proteins on the surface of their scales to prevent them from icing up," says Hirayama. "We are currently collating material and reviewing the findings of previous research on the subject." The team will then attempt to manufacture temperature resistant surface coatings that will not ice up. This is something many car drivers will undoubtedly be thankful for in winters to come, she suggests. But how to go about it? Says Hirayama: "By thinking long and hard and considering what kind of experiments might get the desired results. At the end of the day, nanotechnology research is nothing more than the creative pursuit of answers and a keen eye." /

Tax-efficient strategies for both sides of your balance sheet

With the official tax season still top of mind, this is a good time to consider both sides of your balance sheet with your Financial Advisor.

Managing the tax consequences of investing is a key part of investment planning. Yet taxes aren't limited only to the asset side of your balance sheet; a mortgage or other financing can also affect your tax situation.

As part of your overall wealth management plan, you and your Financial Advisor can review strategies to help you manage your tax burden. As always, you should consult your tax advisor(s) about the tax implications of any financial transaction or strategy. Neither UBS Financial Services Inc. nor its Financial Advisors provide tax advice.

Tax-efficient investment strategies

Employing tax-efficient strategies may not only reduce your overall tax burden, but may also potentially increase your after-tax returns. Below, we outline some strategies to consider.

Typically, assets held for more than one year are taxed at lower capital gains rates. However, in reviewing your portfolio, your Financial Advisor may identify investments that no longer fit your investment goals or asset allocation. While usually the payment of tax with respect to a sale of appreciated assets is deferred until the following year, it may make sense if you also realized losses in an amount equal to or greater than the net capital gains as the losses can be used to offset the gains as a result of the sale. Keep in mind that excess net capital losses may be used to offset up to \$3,000 in ordinary income in a single tax year, and unused losses may be carried over indefinitely.

You and your Financial Advisor may find that your portfolio includes securities that have declined in value but that you may still want to own. A strategy to consider in this case is realizing a capital loss to apply against future gains. To avoid the "wash sale rule" (in which the loss cannot be treated as a capital loss on your federal tax return), the depreciated security is sold and repurchased outside the required 61-day period, generally defined as the 30-day period before the date of sale and ending

30 days after the date of sale. To maintain your portfolio's diversification, you can also consider purchasing a similar stock—in the same industry, for example—during the aforementioned holding period.

If you own bonds that have decreased in value, you may want to consider a bond swap. This technique allows investors to sell their current holding and then reinvest the proceeds in a different bond with similar characteristics (such as quality rating). With bond swaps, investors can realize the capital loss while reinvesting in a similar bond.

While taxes are an important aspect of investing, certain tax-efficient strategies may present additional risks and you should review the tax implications of any investments with your tax advisor(s). Careful planning is crucial.

Tax-deferred accounts

Tax-deferred investing, via 401(k) plans, Keoghs, IRAs, SEPS, 403(b)s or other plans of this type, has been one of the most important and successful investment strategies for investors with retirement planning needs. But distributions from these types of accounts are taxed at ordinary income rates. Now that taxes on dividend income and capital gains have been substantially lowered, investors may wonder whether the tax advantages offered by these accounts are still relevant. The answer to this question depends on your time horizon and the different types of accounts you hold, and the necessity of advice from a qualified tax specialist cannot be overemphasized. However, the power of tax-deferred compounding has not gone away, especially if you have a number of years to go before you will need the money. Another favorable aspect of these accounts is that investors are often in a much lower income tax bracket upon retirement when distributions are finally taken. Also, certain investments that may have burdensome tax reporting or calculations may be easier to own in a tax-deferred account.

Based on your individual tax bracket, your Financial Advisor can help you evaluate what kind of investments



These are strategies to consider that can help you keep a firm grip on managing your tax burden.

tax management

may be appropriate for your taxable accounts and what kind may be appropriate for tax-deferred accounts.

Municipal bonds and other transaction products

For investors in higher tax brackets, municipal bonds and municipal bond mutual funds often provide higher after-tax returns than their taxable equivalents. While interest income from municipal bonds is typically exempt from federal income taxes, many states tax the interest earned on out-of-state municipal bonds. Consider reviewing the following investments and strategies with your Financial Advisor:

Municipals: Interest paid on municipal bonds is generally income tax-exempt. Keep in mind that municipal bond interest may be subject to the alternative minimum tax (AMT) and that such AMT-taxable interest can be earned from municipal bonds as well as municipal bond mutual funds and tax-exempt money market funds. As with other tax-advantaged investments, investors should review the tax implications of municipal bonds with their tax advisor(s) before taking any action.

U.S. Treasuries: All U.S. Treasuries are exempt from state and local income taxation.

Government Sponsored Enterprises (GSEs): Certain GSEs (or agencies) issue securities that are both state and local income tax exempt.

Stocks: Certain stocks offer the opportunity to earn Qualified Dividend Income that qualifies for the 15 percent dividend tax rate in taxable years beginning before January 1, 2011. At or before this date, the special 15 percent rate on qualified dividend income will be reviewed by Congress which will decide whether the reduced rate will be extended, made permanent or allowed to expire.

Tax-sensitive professionally managed accounts

Investors seeking tax-sensitive investment strategies as well as the benefits of professional management have several options available to them. In addition to equity and fixed income asset classes, several tax-exempt and tax-managed strategies may also be available for suitable

investors. Please contact your Financial Advisor for more information.

Tax-efficient borrowing strategies

It's important to also consider the liabilities side of your balance sheet for ways that you can minimize your tax burden. The interest on most mortgages, including home equity financing, is generally tax deductible and is an important consideration in evaluating your overall tax burden. Generally, mortgage interest is limited to \$1 million and interest on home equity debt is limited to \$100,000.

Interest-only mortgages, which require that you only pay interest during an initial period (instead of both interest and principal), may potentially provide increased tax deductions since mortgage interest is generally tax deductible. These mortgages can also generally lower monthly mortgage payments during the initial period and help improve cash flow and free up funds for other financial needs. Keep in mind that paying only interest does not reduce principal or build equity and you will face higher, fully amortized payments of principal and interest at the end of the initial mortgage period.

Interest paid on securities backed loans is generally tax-deductible to the extent of qualifying net investment income. In addition, financing using eligible securities as collateral can help with your tax situation in another way. By leveraging rather than liquidating assets for various financing needs, you can potentially defer capital gains taxes that may result from selling securities.

You should review the tax deductibility of any financing strategy with your tax advisor(s) before undertaking any course of action.

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What shares are really worth

The stock market is no stranger to exaggeration. However, investors should look beyond the hype to consider fair value, which depends on the earnings outlook and interest rates.

Investment guru Warren Buffett has said, “Buy cheap and hold forever.” It’s a piece of advice that has served him well. But for the novice stock market investor (or even the experienced one), it begs the question, “Just when is a stock cheap?” Analysts set out to determine whether a stock is fairly priced by first determining its fair value and then comparing the fair value to the market price. If the stock is trading below its fair value, then it is undervalued, or cheap. Conversely, if the share price is higher than the fair value, the stock is overvalued, or expensive.

In order to determine the fair value, most analysts use the discounting model. This model functions on the assumption that the value of a stock depends on future amounts the shareholder will receive. Two other factors play a role: the interest rate and the risk of the stock. Both make it possible to compare amounts due at different times. To this end, a discount factor is used, made up of the rate of interest and the risk specific to the stock (see box).

When an investor buys a stock, he or she buys a stake in a company and has a right to a share of profits, which are the basis of payments to the shareholder. A company can either pay out profits to shareholders in the form of dividends or reinvest them in the business. If the second option is chosen, it is generally thought that the company expects to make suitably higher profits to shareholders in the future in order to eventually pay out dividends to shareholders. This explains why shares are more highly valued when the company has better profit prospects. When a stock is being valued, analysts look at the long-term earnings trend rather than the profits posted in a single year.

Predicting the future

The problem is, however, that no one can predict the future—or know for certain how much profit a company will make in the future or how much it will pay out to shareholders. This is where analysts come in, making a judgment that takes the form of an earnings prediction

using a range of factors such as a company’s business strategy, products, management team, the company’s industry and share of market, competitors and the state of the economy as a whole.

This process is not made any easier by the fact that firms can report earnings by using different methods, for example before or after tax, or before or after extraordinary items. On top of this, the level of profits can change depending on the accounting rules applied and the accounting decisions made. Because of some of these variables, analysts follow a convention that means they generally consider free cash flow rather than reported profits. Free cash flow is the amount of cash left over for investments in the expansion of a business or for paying dividends to shareholders.

Even with such calculations, however, future earnings remain unpredictable. Something can always happen to a company or its environment that will impact earnings. This uncertainty is a risk that can affect the value of a stock. Suppose an industrial firm is expecting a profit of \$100 million provided it manages to renew a contract with a major client. If it fails to renew the contract, profits will be lower. Investors will only buy this risky share in return for a discounted price due to the risk, which will improve their return prospects. If the contract is renewed, shareholders will benefit as the value of the share goes up. Where greater risk is involved, investors require higher potential returns, in an amount commensurate with the increase in uncertainty. In order to avoid such a situation and keep the risk discount as low as possible, many companies provide clear, continual information on how they are faring.

Factors are not objective

Interest rates also affect the value of a share. Before buying a stock, an investor will compare the stock to possible investment alternatives. If a relatively secure bond offers an attractive rate of interest, the investor will probably opt for



Share prices rely on real world supply and demand, like prices in this marketplace for spices.

the bond. Very few investors would be willing to buy a stock that is riskier than a bond when it offers a return that is not significantly different. The price of the share would have to drop before the investor could earn substantially more with the stock than with the bond. If interest rates go up, share prices fall. At the same time, high interest rates mean that companies have to pay more interest on borrowed capital, and this also cuts into earnings and, hence, the value of the shares. Taken all together, this explains how the earnings outlook, interest rates and riskiness of the instrument interact to impact the value of shares.

By following share prices over time, you may observe that it takes some time before the price of an undervalued share reaches its fair value. That is because calculating fair value is not a simple, clear-cut process. Consider the following situation: One analyst is utterly convinced by the outlook for a new product, but another feels consumers are unlikely to buy it. These analysts would calculate a different fair value for the stock. The same difficulty applies to the discount factor. There is no clear-cut, precise mathematical means of calculating a given risk or a risk discount. Instead, it is the result of statistical analysis and theoretical considerations. In contrast, the market price of a share is unequivocal for all market participants. At any given time, there is one price and one price only, a price that is shaped by the interaction between supply and demand.

In real life, share prices can often appear to bear very little relation to their fair value. But, if a share is expensive despite the fact that the company is no longer making profits, investors generally notice, and sooner or later the share price goes down. Likewise, investors start to notice when a cheap company is consistently registering higher profits, and the share price will go up. Over the long term, share prices will probably hover around or increasingly move toward their fair value. If this were not the case, Warren Buffett would have had a hard time making his fortune with the shares he acquired cheap. /

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The all-important present value

Discounting is a basic principle applied in order to compare cash flows due at different periods. Today, \$100 is not worth the same as it will be in five years. If you receive \$100 today, you can invest it at a rate of 3 percent interest, giving you roughly \$116 in five years. Consequently, amounts paid out at different times must first be discounted to be made comparable. Only then can they be assessed against one another. The general approach taken is to calculate what future amounts would be worth today, giving a present value.

Put differently, valuing shares using the discounting model means asking what expected per-share payments are worth today. The further ahead a payment lies in the future, the smaller its present value. Present value results when future earnings are discounted. The model therefore takes into account the fact that investors are always confronted by an either/or scenario. If they invest in a stock, they forego interest payments. Depending on how uncertain earnings appear, a risk premium is added to the discount factor and this reduces the present value accordingly.

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