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Expert know-how for Credit Suisse investment clients

Global **Investor**

Unlocking global value

Emerging market brands on the rise
Basics Inflation-linked bonds / emerging market domestic bonds / logistics / superior business models of Swiss small and mid-caps
Enrichment The Northwest Passage / Kazakh banks
Switching One network for everything / energizing solar cells / a regulatory gift for banks

Basics

In this segment, we discuss inflation-linked bonds, highlighting among other things their portfolio diversification characteristics, and we analyze the convergence of strong EM sovereign bonds with those of developed sovereigns. We explain why and how the logistics sector is recovering. Swiss small and mid caps are en vogue, and we highlight a few in this section. **See page 18**

Enrichment

The debate about global warming is providing ammunition for those favoring the Northwest Passage (sea route) as a shortcut between Europe and Asia. Kazakh banking is set to benefit from strong economic growth, and therefore appears on investors' radar screens.
See page 32

Switching

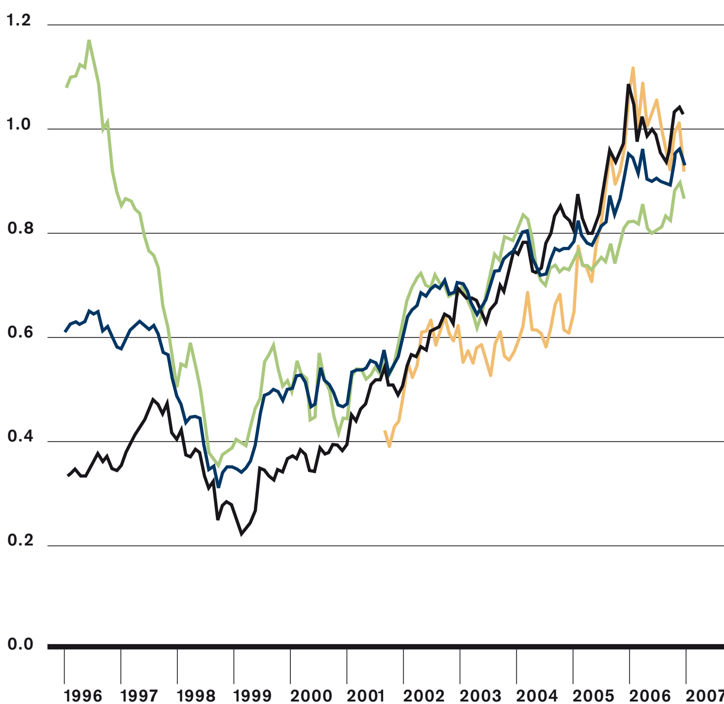
New generation networks will be built by 2010, enabling telecom service providers to offer better service in terms of quantity, and especially quality (IPTV). Nanotechnology will influence the next generation of solar cells. MiFID, a new financial directive to be introduced in November 2007, will benefit certain banks. **See page 42**

Piccadilly Circus, London, Greatbritain

Both equity and bond …

Globalization is increasingly reflected in the convergence of prices for various asset classes, such as equities and bonds. In the case of equities, we illustrate this process using the example of the price to book ratio. For a number of years now, the emerging markets have been undergoing an adjustment process towards the global equity markets. This is being driven by higher earnings growth and return on equity as well as increased risk tolerance on the part of investors.

Relative price to book



Market cap of MSCI EMF as a % of MSCI World

…valuations continue the adjustment process

Economic setbacks such as the Asia crisis in the late 1990s are only of a short-term nature and have no effect on the long-term adjustment process. This investor pattern is also taking place with bond investments and is reflected in narrowing yield differentials. Hence, the risk premium for EM government bonds vs. US Treasuries is steadily declining.

Emerging market bond benchmark spread

2.07

Photo: Martin Stollenwerk

Globalization is evident not only in hard facts such as gross domestic product (GDP) growth or increasing worker mobility but also in the increasing convergence of prices for financial assets. We broadly refer to this process as the unlocking of global value, which is also the main theme covered by the current issue of Global Investor. Global value can be unlocked through investments in a general sense or by investing in certain sectors of emerging markets or even in new technologies in industrialized countries. We offer a broad perspective here, beginning with an article on the new "national champions" in the emerging EMEA region (Europe / Middle East / Africa), whose brands could rise to the ranks of today's giants, just as Toyota or Sony rose to rival Ford and Philips three or four decades ago.

Growth in emerging markets shows no sign of abating. The term "emerging markets" no longer applies to only certain well-known countries in Latin America and Eastern Europe and the Asian Tigers. The frontiers of emerging markets are in a state of flux; countries like Kazakhstan have recently appeared on investor radar screens. Kazakhstan's GDP has expanded at an annual rate of more than 10% for the past six years. Rising living standards and growing international trade flows have created a boom in the banking sector.

The most practical way of investing in emerging markets is through the stock market or stock market-related products. In emerging markets investors can also consider bond investments, because domestic bond issues are increasingly being used to finance growth. We think the current prices of EM bonds do not reflect the given liquidity and credit ratings. We consider inflation-indexed bonds an interesting proposition here, and not only for potential bond investors, because they represent a hedge against inflationary risk while enhancing portfolio diversification.

Global trade volumes have surged during the past five years and are likely to continue to grow in the wake of globalization. Certain segments of the logistics sector stand to benefit strongly from this rising trend. Global warming has raised the prospects of using the Northwest Passage as a shortcut between Europe and Asia. If commercially viable, this new sea route would have a positive effect on global trade flows. Besides these macro-driven issues, we also take a look at micro issues such as the next-generation networks that telecom companies are working on, the impact of nanotechnology on manufacturing solar cells and the implications of MiFID (Markets in Financial Instruments Directive) for the trading volumes handled by banks.

Whether macro or micro, we hope you can take advantage of our ideas in this issue of Global Investor to make sound investment decisions.

Maria Dolores Lamas, Head of Financial Products & Investment Advisory

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PREISTRÄGER
2006 BCP BEST OF CORPORATE PUBLISHING

Photo: Neil Emmerson/Getty Images

Times Square, New York, USA

Unlocking global value

Emerging market brands on the rise
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Emerging market brands on the rise

With the growing contribution of emerging markets (EMs) to world gross domestic product (GDP) growth, we believe that several EM-based companies are on the verge of becoming larger and more powerful brands. We identify two types of firms: companies that are export-oriented and gaining market share at the expense of Western competitors, which we call “national champions,” and companies benefitingfrom the emergence of a middle class in several EMs, which we refer to as “mirror companies” because of the way they emulate Western business models.

Lars Kalbreier, Head of Global Equities and Alternatives Research, **Hervé Prettre,** Head of Commodities and Equities Trading Research, **Etrita Ibroci,** Trading Strategist

The rise of new brands from emerging markets (EMs) is not a new phenomenon. The emergence of local brands follows a traditional development pattern that is similar to the historic development of US, European and Japanese companies in past decades. Depending on the size of the country, a brand usually follows one of two types of developmental models: **_1._** The domestic market model: a strong domestic market long protected from foreign competition will support local brands. With economic growth, standards of living rise rapidly in the developing economy. As a result, consumers in such markets have growing amounts of disposable income and higher salaries, which fuel domestic consumption, enabling some local brands to gain significant size and reach the status of “brand behemoths.” As such, they eventually achieve economies of scale, global status and competitiveness. **_2._** The export model: countries with insufficient domestic markets choose to specialize in selected competences and focus on the export of value-added products. These companies are often backed by their governments and are thus qualified as “national champions.” They have some competitive advantages in terms of resources, an educated and cheap workforce, and research, just to name a few.

In recent history, the two models have tended to merge into one. In the 1970s, companies in countries such as Japan, which emerged thanks to the rise of domestic consumption, also got a boost from their governments to raise their competitiveness and become national champions. The opposite is currently happening in China, where national export champions are increasingly expanding in the domestic market to benefit from the rising middle class. In the past few years, the rapid acceleration of economic growth in most EMs has revived the theme of emerging brands. Rapid economic growth has translated into significant increases in gross domestic product (GDP) per capita, boosting the turnover of local companies geared to consumption. Globalization has also increased the export opportunities of a number of companies, reinvigorating the idea of national champions. In our view, the emergence of this new competitive landscape in the coming years is unmatched in recent history and can be compared to the rise of Japanese and Korean brands in the 1970s and 1980s.

Historic benchmark: The emergence of Japanese brands

Japan’s development started in the 1960s, as the country began to build up its own brands and distribution systems. Japan developed innovative products and production processes at such a fast pace that by the mid-1970s, they were dominating American and European companies in sectors from automobiles to consumer electronics. Brands such as Toyota and Sony became world leaders from a zero base. In 1953, Japan accounted for 1.5% of world exports. By 1978, its export share had risen to 7.5%. Investment in its emerging brands, based on domestic consumption or national champions, turned out to be a profitable move. A Japanese company like Toyota offered significant performance if included in a portfolio in 1973, by which time it had established a presence in most Western countries and seven years before its market share gains skyrocketed at

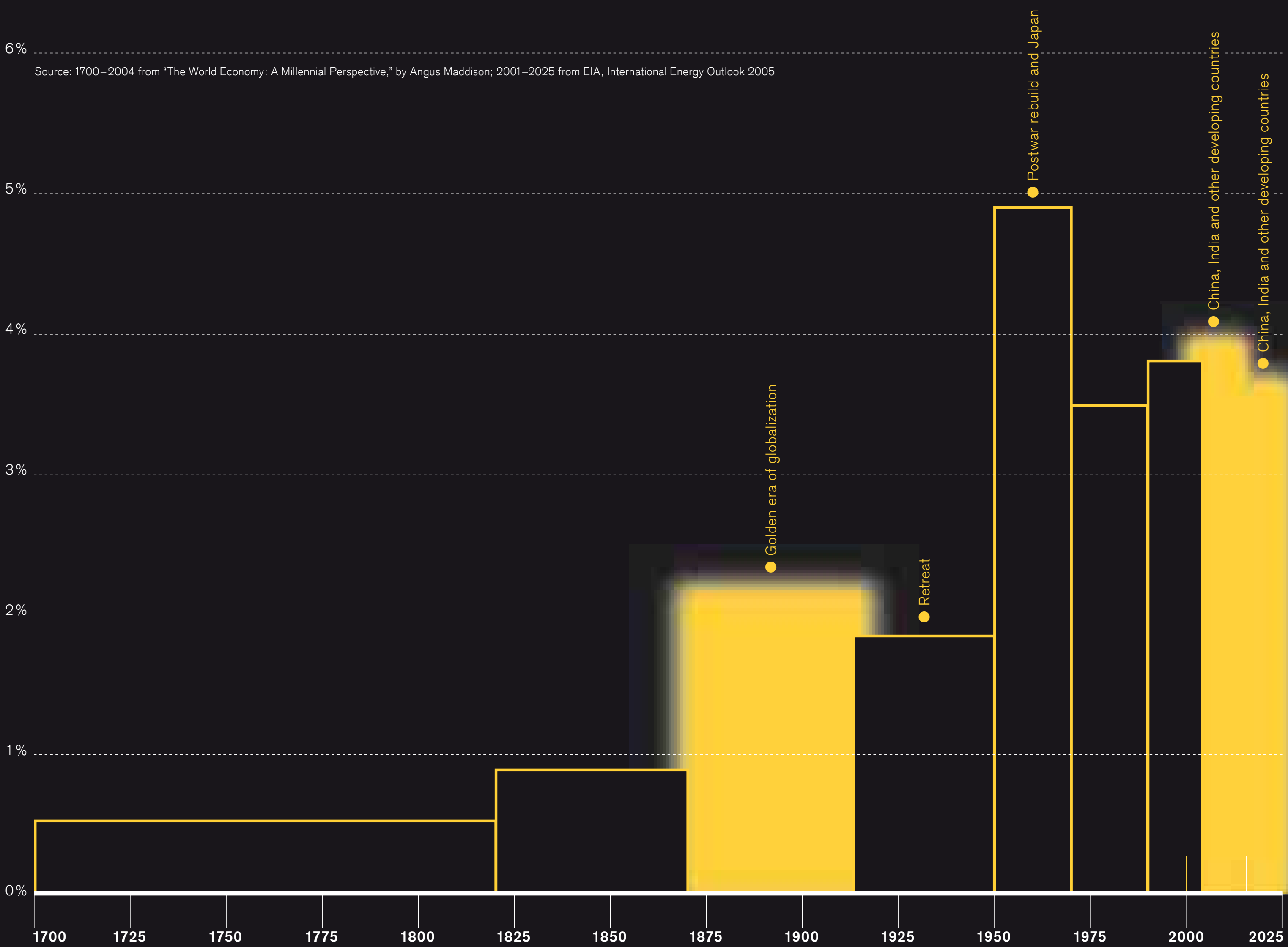


Figure 2

Long-term world GDP growth rate (1700–2025 E)

The emerging economies are expected to become the engines of global growth for the next 20 years.

the expense of US firms. Opportunities are now open for the "next generation" of EM mirror companies and national champions. We believe investing in the right ones could deliver significant returns on a long-term horizon. A look at **Figure 1** shows the profitability of investment in past national champions. Of course, investors should not expect to see a straight line: the return on these investments on a 10-to-15-year horizon would reach close to +13% per annum, more than twice the geometric mean of world equity markets since 1900 (estimated at +5.7% p.a. according to Dimson, Marsh and Staunton). However, volatility in most cases would be significant. Corrections in world equity markets tend to be more pronounced for EMs, as highlighted by the May 2006 or March 2007 corrections. However, in the long run, there may be superior returns, as highlighted by **Figure 1** showing the performance of some national champions of the past during selected decades.

The secular rise of the emerging market consumer

EM consumers have grown in importance and are able to fuel local companies geared to consumption. As highlighted by **Figure 2**, global economic growth has accelerated in the past decades, and is increasingly supported by EM growth. As a result, EMs now represent just under 50% of world GDP **(see Figure 3)** in terms of purchasing power parity (PPP). According to the IMF, in recent years, consumption in EMs has grown by an average +7% per annum, compared to +2% to +3% in Western countries. Per capita income growth in the emerging markets is very high compared to the "Group of 5" (G5) countries, and such a rapid pace of growth is likely to continue into the foreseeable future **(see Figure 4 and Table 3)**. Moreover, widening income distribution in these regions suggests that the higher-income population will likely grow at an even faster rate (according to Credit Suisse research, the number of households in China earning over USD 5,000 is likely to grow more than six times faster than the growth rate of average incomes).

Moreover, in the past decade or so, several countries have recorded a significant rise in their GDP per capita, and some cities (like Shanghai) are already seeing their population benefit from a GDP per capita above USD 7,000, which is the benchmark for luxury goods consumption. The level of wealth in these cities matches the level of GDP per capita in countries like Greece or Portugal, but with a much larger population base. Urbanization particularly supports consumption, as new urban residents in many countries discover national or international brands which have not yet reached the countryside. The younger urban population is also changing savings habits of the older generation: in China for instance, many urban youngsters are known as "yueguangjue," or "broke every month," as they venture on a consumption spree regularly. We are far from the 40% savings rates of the Chinese population in the year 2000. Still, the EM consumer market is underdeveloped, considering the proportion of domestic consumer stocks in total EM market capitalization, let alone compared to the size of the consumer sector in Western stock exchanges. EM consumerism is in its infancy, but its growth potential may present some interesting long-term investment opportunities, as highlighted by **Figure 4 and Table 3**.

Opportunities for exposure to this rising EM middle class

We believe that some local companies are benefiting from this rapid accumulation of wealth. Many consumption-geared EM companies have not needed to reinvent their business models; they simply "mirror" the models used by their Western peers in recent

Figure 1

Return in months from USD 100 invested at start

Companies becoming national champions have historically delivered strong returns during the first 10 to 15 years of growth.

Source: Bloomberg, National Bureau of Economic Research, Credit Suisse

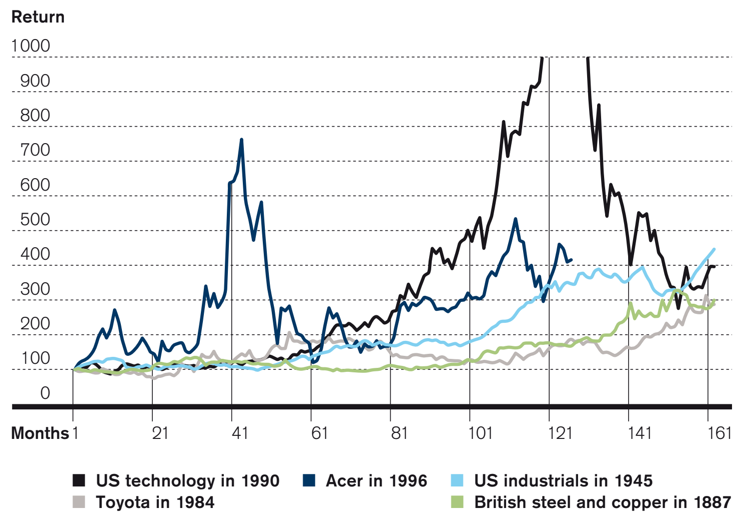


Figure 3

Share of world GDP

The world is becoming more geographically diversified, with less dependency on the USA, Europe and Japan. Soon emerging economies will be as important as the developed ones. Source: International Monetary Fund

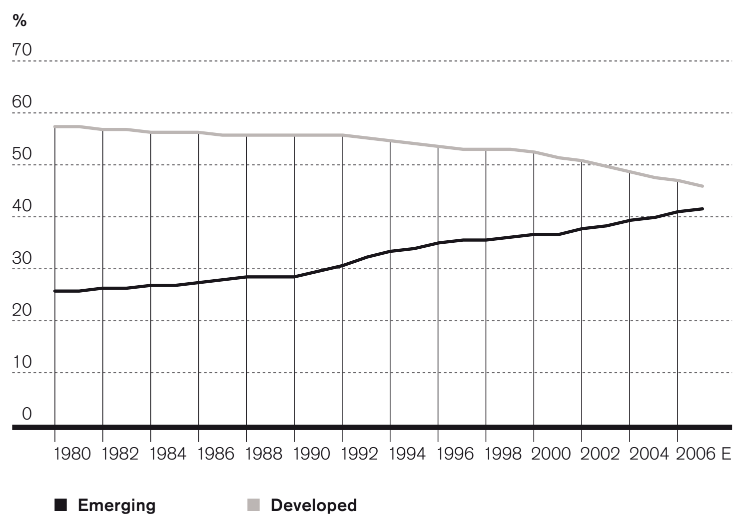


Table 1

Selection of mirror companies with brief descriptions

This is a selection of EM companies which Credit Suisse believes have the potential to become major companies in the long term, based on the emergence of a middle class in countries posting superior economic growth as well as Credit Suisse's view on these companies. Source: Bloomberg, Credit Suisse

Region	Country	Name	Ticker	Sector	Short description
Asia	Korea	Samsung Fire & Marine Insurance	000810 KS	Insurance	Koreans are increasingly buying more non-traditional insurance products that offer both protection and savings.
	China	Li Ning	2331 HK	Apparel retail	Alternative to the Western sports apparel and shoe companies such as Nike or Adidas, focused mainly on Chinese fashion.
	China	Baidu ADR	BIDU US	Internet content	Largest search engine and portal in China with search algorithms that are suited specifically to the Chinese language.
	China	Denway Motors	203 HK	Car manufacturing	Core business: making and distributing sedans in China through its 50%-owned Guangzhou Honda JV with Honda Japan. It also has an auto component business.
	China	Dongfeng Motor	489 HK	Car manufacturing	One of the largest car manufacturers in China. Its joint ventures with a number of international brands, namely Kia, Peugeot-Citroën, Honda, and Nissan, provide it with one of the most diversified product portfolios.
	China	China Mengniu Dairy	2319 HK	Food and beverages	China's largest dairy product manufacturer with a more than 30% market share. It is one of the most innovative and cost-efficient players in the industry.
	China	Dynasty Wine	828 HK	Food and beverages	One of the top three local wine brands in China. It owns one of the largest distribution networks. Its partnership with Remy Cointreau SA also helps it stay ahead of its competitors in terms of wine quality and R&D capability.
	China	Tsingtao Brewery	168 HK	Food and beverages	China's most famous brewery and therefore the major player in the high-end market. It runs an extensive distribution network in the affluent coastal cities.
Eastern Europe	Russia	Vimpelcom	VIMP RU	Mobile phone operators	Russia's second largest mobile phone operator, covering most of Russia's population, with a focus on cities.
	Russia	Kalina	KLNA RU	Cosmetics and toiletries	A strong presence in the Russian personal care market: 18% share in facial care in value terms, 9% in oral care and 16% in skin care.
	Russia	Wimm-Bill-Dann ADR	WBD US	Food, juice and dairy	Russia's Danone. It produces yoghurt, fruit-flavored milk, and fruit juices, which are sold in the former Soviet Union (FSU) and some export markets.
	Poland	Agora	AGO PW	Media	Publishes the "Gazeta Wyborcza" daily newspaper, operates ten regional radio stations and owns a minority stake in the operator of cable television station Canal Plus Polska.
Latin America	Brazil	Porto Seguro	PSSA3 BZ	Insurance	The largest auto insurance company in Brazil, with a 16% market share in the auto insurance business, which is a growing business catering to the Brazilian middle class.
	Brazil	Gol ADR	GOL US	Airlines	The only low-fare, low-cost airline operating in Brazil, providing frequent service on routes between all of Brazil's major cities.
	Mexico	Walmex	WALMEXV MM	Retail	A mirror company of US Wal-Mart as it retails food, clothing, and other merchandise under a variety of store formats. It also operates restaurants.

decades, which are based, among other things, on just-in-time delivery, consumer credit, and use of the Internet. As a result, selected EM mirror companies are likely to develop faster than, for example, Ford did in the USA in the 1920s, or Metro in Germany after World War II.

Selected sectors expected to benefit

As credit and mortgage availability grows, banks that operate in the consumer credit area in EMs could be viewed as growth stocks. There is a notable lack of leverage across EMs, especially in the domestic consumer sector, and investors can anticipate a strong boom in consumer credit cycles. We believe this new trend is likely to be particularly pronounced in Asia, where domestic demand remains weak compared to exports, and external surpluses are huge. Finally, the recent access to wealth usually induces a spending spree on some prestige items as a way to highlight personal success. Further opportunities in the credit business remain in several countries, such as Kazakhstan, which is discussed in detail in a separate article in this publication.

Another sector significantly geared to the emergence of a local middle class is consumer staples. As incomes rise in EM countries, there is often a move toward branded food and beverages, focusing on international brands like Danone, Coca-Cola or Nestlé but also on famous local brands such as Ambev in Brazil, Will-Bill-Dann or Kalina in Russia or Tsingtao in China. Since the middle class is mostly urban, it needs access to organized retailers, which carry the largest number of branded products. Retail chains and specialized retail, pharmacy chains for instance, have grown rapidly in recent years and are currently preparing for even higher demand, usually adapting the Western model of just-in-time delivery, size and customer loyalty. We would also highlight sectors like local media, which are benefiting from a greater appetite among the middle class for information flow, higher advertising fees and higher subscription rates.

Emergence of potential EM national champions

As mentioned earlier, the national champion model is no longer the reserve of small countries looking for a niche. It has become the priority of large emerging markets wishing to increase their share of added value in the world economy. This is illustrated in the progressive up-market moves of Chinese, Indian and other firms, away from competing merely on price and toward own brand and distribution network development, backed by leapfrogging technology. China was the first EM country to endeavor expanding its product mix and selling higher-value-added items, as the country had already reached a significant size in labor-intensive electronics and textile exports, and growth momentum in those low-value-added items appeared limited for the future.

A Chinese initiative for national champions has therefore started in recent years and has focused on several sweeping measures: _**A**_Strong public research and development (R&D) efforts: R&D rose from 0.7% of GDP in 1997 to 1.3% in 2002, with 2.0% targeted for this year. The OECD estimates that China has become the world's third largest investor in R&D, after the USA and Japan, spending 18 billion euros in 2005. Close to 12 million Chinese students are currently enrolled in post graduate scientific education, which could make China the biggest source of researchers in the coming decade. _**B**_Growing international investment: 70% of Chinese companies currently have capital expenditure plans in foreign countries._**C**_

Figure 4

Per capita income growth

Per capita income growth in EMs is high compared to G5 countries, and such a rapid pace of growth is likely to continue into the foreseeable future. Widening income distribution suggests that the higher-income population will likely grow at an even faster rate.

Source: International Monetary Fund, The Economist Intelligence Unit, Credit Suisse

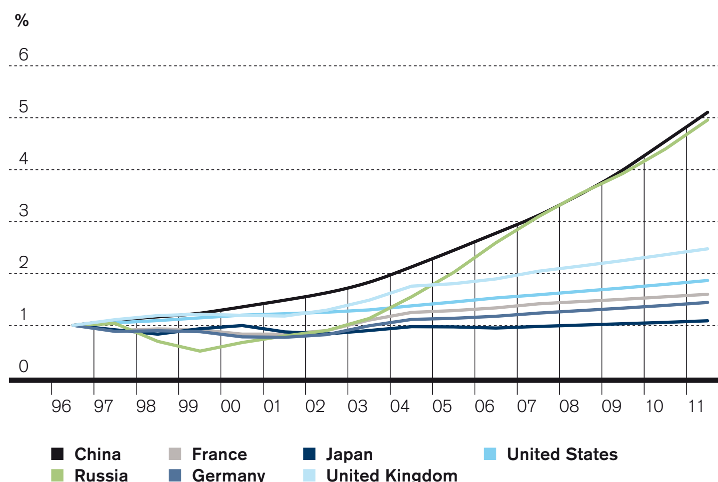


Table 2

Selection of national champions with brief descriptions

We have not included all official national champions in this list. In China for instance, 50 companies are officially qualified by the government. According to our information, some of those companies are still not fit for international competition, while many others are already well advanced in their international development projects and do not fit this selection, which is more geared to selecting nascent brands. Source: Bloomberg, Credit Suisse

Region	Country	Name	Ticker	Sector	Short description
Asia	China	Lenovo	992 HK	PC hardware	China's leading manufacturer of PCs and handheld devices. Benefits from the Chinese government's target of making it a Chinese high tech giant.
	China	ZTE	763 HK	Telecom equipment	The leading Chinese telecom equipment provider. ZTE now endeavors to serve emerging markets around the world. Its goal is to be as competitive as Western providers in commodities telecom equipment, but much cheaper, thanks to Chinese labor costs.
	China	PetroChina	857 HK	Oil and gas	One of the world's largest integrated oil companies. It owns more than half of the country's oil reserves. It also runs the country's second largest retail network for oil products.
	Hong Kong	Esprit Holdings	330 HK	Apparel retail	Already a well-known brand for high-quality lifestyle clothes and shoes. Esprit Holdings derives 80% of sales from Europe. The company plans further expansion in Europe to catch the current consumption trend toward leisure.
	India	Infosys ADR	INFY US	Software	In ten years, the company has gone from being a basic outsourcer for data typing to a provider of application software solutions and consulting services. It is now trying to include higher-value-added services by offering global outsourcing packages to leading international clients.
	India	Wipro ADR	WIT US	Software	One of India's leading providers of system integration and outsourcing services. Operating in about 35 countries, its Wipro Technologies division offers software development and business process outsourcing (BPO) services, as well as management consulting and product engineering.
	India	Satyam ADR	SAY US	Software	Among the top five Indian IT services companies (in terms of revenue). Its main market is the USA, from where it derives 69% of its revenue, followed by Europe (15%), and the remainder from Asia Pacific. Satyam derives its revenue from the banking and finance, insurance and manufacturing verticals.
	Malaysia	Proton Holdings	PROH MK	Car manufacturing	Malaysia's biggest carmaker. Through its subsidiaries, the company manufactures, assembles, and sells motor vehicles and related products such as accessories, spare parts, and other components. Proton is looking for international partners to significantly boost its exports.
Eastern Europe	Czech Republic	Zentiva	ZEN CP	Pharmaceuticals	Via a large dedicated sales force and a unique marketing approach, Zentiva has established a solid generics and OTC position in the Czech Republic and Slovakia, and has also actively entered the high-growth markets of Poland, Russia and Romania.
	Hungary	Gedeon Richter	RICHT HB	Pharmaceuticals	The largest Hungarian drugmaker. During the Communist era, it was one of the leading suppliers of pharmaceuticals within the Soviet Bloc and remains a leading player and a well-recognized brand in the Russian market. Around two-thirds of revenues are still generated in Central and Eastern Europe.
Latin America	Brazil	Petrobras ADR	PBR US	Oil	Created in 1953 by the Brazilian government to develop the country's oil sector. It operates in both upstream and downstream and continues to have one of the best growth profiles thanks to unparalleled access to resources.
	Brazil	Empresa Brasileira de Aeronautica ADR	ERJ US	Aerospace	One of the world's leading manufacturers of commercial, corporate, and defense aircraft. It is one of the only EM aerospace companies in the world.
	Brazil	CVRD Holding	VALE5 BZ	Basic materials	A vast mining-industrial complex with its main activities in the area of mining, processing and sale of iron ore, pellets, manganese, titanium, gold, copper, potassium and other minerals. With the acquisition of Inco, CVRD has definitely become a major league company.
Others	Jordan	Hikma Pharmaceuticals	HIK LN	Pharmaceuticals	One of the fastest-growing generics companies, profiting from the Eastern European, Middle Eastern and North African regions. Moreover, Hikma is growing strongly in its injectable drugs division. In January 2007, Hikma announced the acquisition of the German oncology injectables business, Ribosepharm, which should further enhance the outlook for this division and strengthen the company's presence in Europe.

Dismantling of some of the regulations that hinder corporate dynamism: reforms of state-owned banks, an end to exchange control for corporations, privatizations, and an end to administrative authorizations for mergers have become recurrent features in the past few years. China is endeavoring to create 50 national champions by 2010 in several key sectors including telecom, oil, automobiles, and consumer electronics. If China follows the example of Japan, then Chinese sector champions are likely to become the next Fujitsus or Sonys.

Overall, we believe we can identify China's National Champions in three fields: **1.** The large state-owned companies with significant cash holdings and strong financing capabilities, which could be very active in acquisition activities in overseas markets in the years ahead. Examples include the three oil companies (PetroChina, Sinopec and CNOOC), major financial institutions (ICBC, China Life, BOC, CCB) and the major telecom companies (China Telecom and possibly China Netcom). **2.** The domestic consumer brands, which are beginning to obtain international recognition, like Lenovo or Tsingtao Brewery. **3.** Technological leaders: China is particularly strong in the telecom equipment segment, and the domestic issuance of 3G licenses should give domestic companies a strong boost. ZTE tops the list, but the unlisted Huawei Technology is probably the genuine leader of the pack. Also, China's machinery sector is on a rising trend, with Shanghai Electric the main focus here.

India is focusing on IT services and software as the country's key competitive advantage. India benefits from a low-cost (GDP per capita is only USD 600), English-speaking workforce that enjoys an above-average education level. In the past decade or so, the government has aided the development of IT services through tuition for its residents in Western universities, subsidies for skilled foreign management to come to India, and infrastructure development such as the technology parks of Bangalore. In Latin America, the state has been relatively less inclined to directly promote/support national champions either through special incentives or subsidies or by discriminatory treatment of foreign firms in the same sector domestically. Many of the successes in terms of the development of Latin American national champions have been entrepreneurial rather than state-led efforts. Interestingly, a partial exception may be Brazil, where the country has aggressively defended the interests of Brazilian corporations (in terms of market access). This has been most relevant for agribusiness but also for the aircraft manufacturer, Embraer. Finally, in Eastern Europe, the emergence of national champions is starting too, mostly pushed by Western corporations thanks to business relocation. New European Union members are benefiting from this business relocation, as Western corporations move to take advantage of local bases of excellent skills, low labor costs, good transport and well-developed infrastructure. As a result of these flows from the West, some niche sectors have developed, including auto construction in the Czech Republic or pharmaceuticals in Hungary (Richter Gedeon Nyrt and Egis).

Pharmaceuticals are being positioned as both national champions and mirror companies. Pharmaceutical companies enjoy increasing public support and foreign recognition, as most Western pharmaceutical companies have developed partnerships with them working together on joint projects. ■

Table 3

Per capita GDP: Compound annual growth rate (CAGR)

Per capita GDP growth in EMs is high compared to G5 countries, and such a rapid pace of growth is likely to continue into the foreseeable future.

Source: International Monetary Fund, The Economist Intelligence Unit, Credit Suisse

	Historical growth		Est. growth		
	5-year CAGR	10-year CAGR	14-year CAGR	2006–08 CAGR	2006–11 CAGR
China	13%	11%	12%	13%	13%
Russia	27%	10%	19%	17%	14%
France	10%	3%	3%	4%	4%
Germany	9%	2%	2%	4%	4%
Japan	2%	–1%	1%	3%	3%
United Kingdom	10%	7%	5%	6%	5%
United States	5%	4%	4%	4%	4%

Photo: Justin Guariglia/Getty Images

Roadway, Guangzhou, China

Inflation-linked bonds as an asset class

Inflation-linked bonds are primarily issued by governments. The bonds offer investors a direct hedge against inflation, as well as a real yield. Historically, inflation-linked bonds have exhibited a negative correlation to equities. Their solid risk/return ratio and low correlation to other asset classes make them a valuable alternative investment asset in both strategic and tactical asset allocation.

Dr. Jeremy J. Field, Credit Analyst, **Dr. Karsten Linowsky,** Fixed Income Strategist

Paul Volcker, the chairman of the US Federal Reserve Bank from 1979 to 1987, is generally credited with bringing the US economy out of the stagflation crisis (stagflation is a period of inflation, low growth) that followed the two oil price shocks of the 1970s. The US consumer price inflation peaked in 1980 at 13.5% **(Figure 1)**. The Federal Funds rate peaked at 20% in June 1981 **(Figure 2)**, and the yield on the 10-year US Treasury Note (US T-Note) rose to around 16%. This tight monetary policy had the desired result of lowering inflation, which came down dramatically to 3.2% in 1983. Following the traumatic inflation experience of 1979 to 1981, the UK was the first government to start offering inflation-linked bonds in 1981 in response to demand from institutional investors. Other industrialized countries have followed suit: Australia (1985), Canada (1991), Sweden (1994), USA (1997), France (1998), Italy (2003), Japan (2004) and Germany (2006). **Figure 3** shows the development of the consumer price indices of selected industrialized countries. **Table 1** shows the index details of Barclays' world inflation-linked bond index. While governments are by far the largest issuers of inflation-linked bonds, there are other issuers, such as the French government agency CADES, as well as some utilities and banks. However the non-government issues generally suffer from a lack of liquidity in secondary markets.

Total return performance of ILBs as an asset class

Changes in inflation expectations and real yields, together with changes in risk and liquidity premiums, are the main factors that drive ILB total returns versus the total returns of other asset classes, as well as the correlation of returns. **Table 2** details the average annual total returns for USD assets from 1997 to the present. The excess return is the return over Treasury Bills (cash). The standard deviation indicates the price volatility of the asset class. Of the asset classes analyzed, the highest total return was achieved by real estate, 15.9%, with an excess return per unit of risk (Sharpe ratio) of 0.83. Hedge funds also performed well with 9.78% and a Sharpe ratio of 0.80. Emerging market bonds were the second-best-performing asset class with an average return of 10.5%, but with a less satisfactory risk/return than real estate, hedge funds and ILBs. With an average return of 8.05%, equities outperformed US government ILBs (TIPS, Treasury Inflation Protected Securities) but

Figure 1

US CPI and annual inflation rate

US headline consumer price index (CPI) normalized to 100 in 1983 and inflation rate from 1913 to present. Source: Credit Suisse, Fed Res Bk Minneapolis

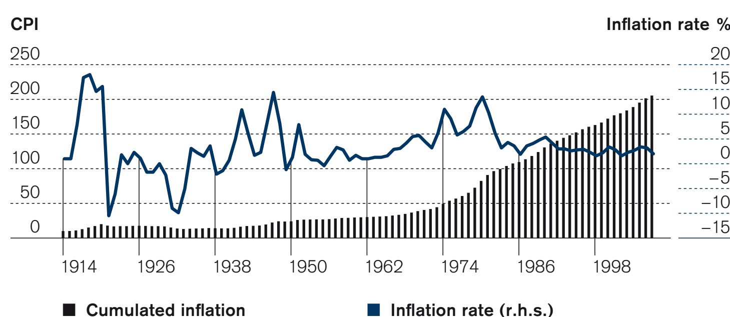
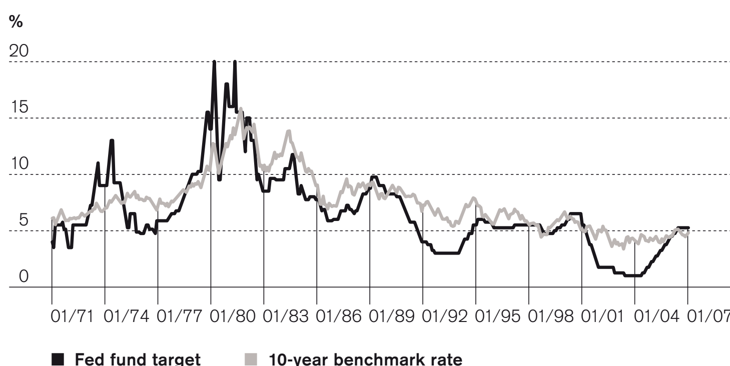


Figure 2

Fed Funds and 10-year Treasury yield

The US Federal Reserve Bank target rate and the US Treasury Note 10-year yield. Source: Credit Suisse, Bloomberg



with a worse Sharpe ratio. Although commodities (CRB index) have performed well in the past couple of years, they were the underperforming asset class for the time period analyzed. **Figure 4** charts total returns for the main asset classes. Since their launch in 1997, the historical total return performance of TIPS has been better than that of nominal US T-Notes, namely 6.6% versus 6.1%. This higher total return of TIPS was achieved with a better Sharpe ratio (which measures the excess return over T-Bills per unit of risk), 0.51 for TIPS versus 0.43 for T-Notes. **Figure 5** highlights the annual total returns of equities, T-Notes and TIPS, and illustrates the negative correlation between TIPS and equities, which is desirable from the standpoint of portfolio diversification.

The general feature of government ILBs is that both the principal and the coupon increase in line with the linked consumer price inflation index. Breakeven (BE) inflation is defined as the difference between the real yield of an ILB and the quoted nominal yield of a normal government bond of the same maturity. **Figure 6** shows the development of the real yield and the BE inflation for the 10-year TIPS. Real yields have declined since the year 2000. BE inflation has remained relatively stable at around 2.5% since 2003. **Figure 7** shows a rise in real yields of around 40 basis points over the same period.

TIPS in total return portfolios

TIPS make a beneficial contribution to fixed income, equity and balanced equity-fixed income portfolios in terms of improving the efficient frontier. Constructing efficient portfolios with TIPS produces a beneficial diversifying effect in most contexts. In our view, a comparison of the returns of various asset classes is only a credible exercise when the risk differentials across the classes are taken into account. The expected returns and asset class volatility of our analysis are based on the monthly data from March 1997 to end-December 2006. **Table 3** shows that the correlation between T-Notes and TIPS is relatively high at 0.79. From **Table 3** we see that the correlation between TIPS and equities is negative, at –0.19, hence we would expect a very strong diversification effect from mixing the two asset classes. **Figure 8** shows how the performance volatility of a portfolio of T-Notes (government bonds) and equities can be reduced by the addition of TIPS.

Inflation-linked bonds offer investors a certain protection of their assets against future inflation, contingent on how well an investor's inflation risk is aligned to the CPI to which a particular bond is linked. These instruments provide the opportunity for "real" asset/liability matching. Generally speaking, it is attractive to invest in ILBs when real yields are high and BE inflation is low. The solid risk/reward ratio of TIPS and their low correlation with other asset classes make them a valuable diversifying alternative investment class for both strategic and tactical asset allocation. It is particularly worth noting that TIPS exhibit a negative correlation to equities. ■

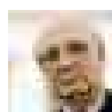


Photo: Corbis

Paul Volcker was born in New Jersey in 1927 and studied economics at the universities of Princeton and Harvard and at the London School of Economics. He is best known for his time as Chairman of the Board of Governors of the Federal Reserve System, 1979–1987. He is also a former Undersecretary of the Department of the Treasury and President of the Federal Reserve Bank of New York. He is Professor Emeritus of International Economic Policy at Princeton University.

Figure 3

CPI for various countries (logarithmic scale)

Headline Consumer Price Index, normalized to 100 in 1960, for selected industrialized countries. Source: Credit Suisse, Bloomberg

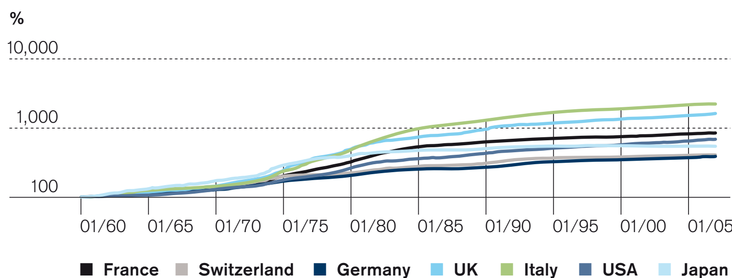


Figure 4

Total returns by asset class

Cumulative total returns by USD asset class, normalized to 100 in March 1997. Source: Credit Suisse, Bloomberg, Datastream

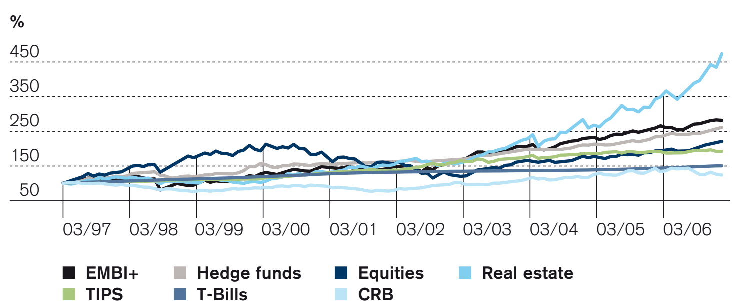


Figure 5

Returns for equities, T-Notes and TIPS

Annualized returns for USD equities, government bonds and inflation-linked bonds, illustrating the negative correlation between equities and TIPS. Source: Credit Suisse, Bloomberg, Datastream

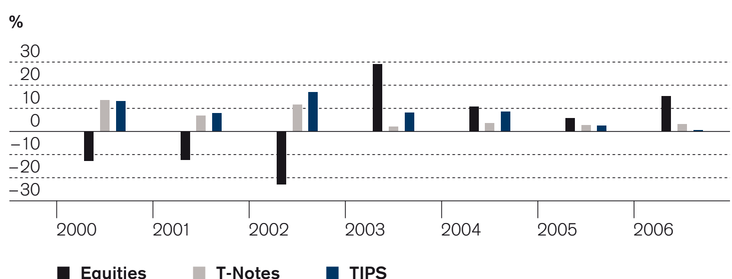


Figure 6

Real yields and BE inflation

Development of real yield and breakeven inflation for 10-year TIPS. Source: Credit Suisse, Bloomberg

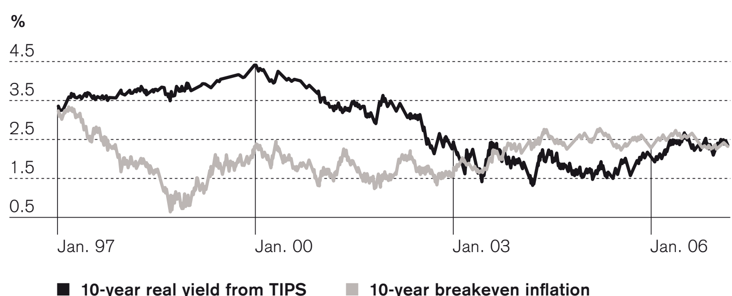


Figure 7

Real yields have risen

Real yields have risen across the TIPS yield curve since the end of 2005. Source: Credit Suisse, Bloomberg

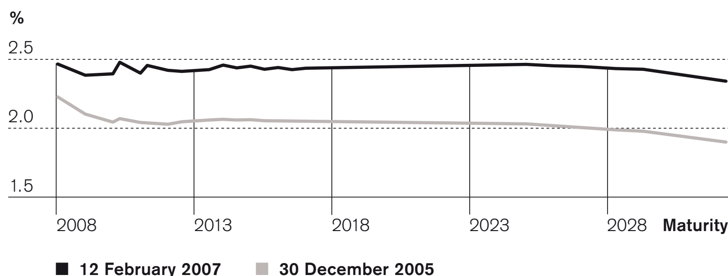


Figure 8

TIPS help reduce portfolio volatility

Adding TIPS to an equity/bond portfolio helps reduce return volatility due to the negative correlation of TIPS to equities. Source: Bloomberg, Datastream, Credit Suisse

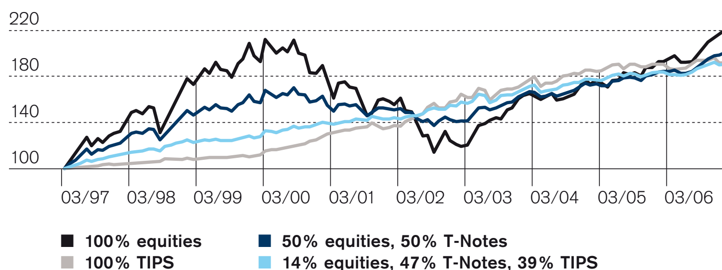


Table 1

Government ILB bond indices

Key parameters of Barclays Capital government inflation-linked bond (ILB) indices. Source: Barclays Capital, Credit Suisse

Issuer	No. issues	Mkt. val. USD bn	Avg. real yield %	Avg. maturity years
US	21	401	2.37	9.96
Euro Gov	17	261	2.05	9.51
UK	11	257	1.42	16.82
Japan	10	41	1.24	8.79
Sweden	6	35	1.85	10.91
Canada	4	31	1.78	22.43
Japan	10	41	1.24	8.79
Australia	3	7	2.63	9.34

Table 2

Risk/return of USD assets

Historical annual total returns, excess returns over cash, volatility and risk-adjusted returns (Sharpe ratio) for various asset classes. Source: Credit Suisse, Bloomberg

Risk/return overview

	EMBI+	Hedge funds	Equities	Real estate	TIPS	T-Notes	T-Bills	CRB
Average return	10.55%	9.78%	8.05%	15.92%	6.62%	6.07%	4.10%	2.10%
Excess return	6.45%	5.68%	3.94%	11.82%	2.52%	1.97%	0.00%	–2.01%
Std. dev.	15.03%	7.09%	15.45%	14.23%	4.98%	4.56%	0.59%	10.85%
Sharpe ratio	0.43	0.80	0.26	0.83	0.51	0.43	0.00	–0.19

Table 3

Correlation of USD assets

Historical correlation of various asset classes and CPI. Source: Credit Suisse, Bloomberg

Correlation matrix

	EMBI+	Hedge funds	Equities	Real estate	TIPS	T-Notes	T-Bills	CRB	CPI
EMBI+	1.00	0.49	0.53	0.35	0.16	0.05	–0.02	0.19	0.01
Hedge funds	0.49	1.00	0.47	0.22	–0.06	–0.02	0.07	0.15	–0.06
Equities	0.53	0.47	1.00	0.28	–0.19	–0.23	0.06	0.13	–0.13
Real estate	0.35	0.22	0.28	1.00	0.13	0.01	–0.10	0.14	–0.05
TIPS	0.16	–0.06	–0.19	0.13	1.00	0.79	–0.01	0.16	0.06
T-Notes	0.05	–0.02	–0.23	0.01	0.79	1.00	0.16	–0.01	–0.10
T-Bills	–0.02	0.07	0.06	–0.10	–0.01	0.16	1.00	–0.21	–0.01
CRB	0.19	0.15	0.13	0.14	0.16	–0.01	–0.21	1.00	0.18

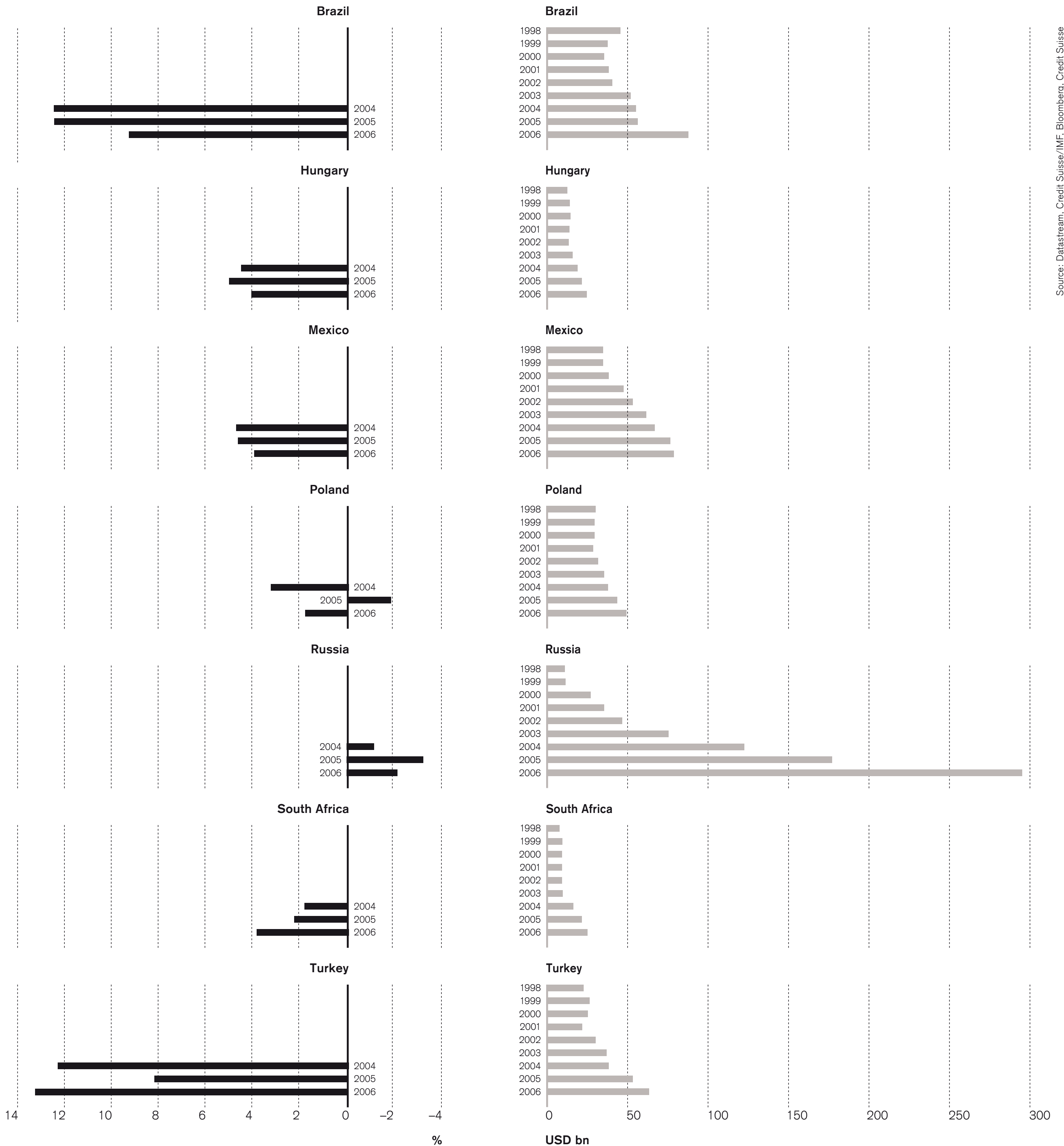


Figure 1

Real interest rates in selected EM credits and foreign currency reserves

Longer-term real rates in Brazil and Turkey will probably continue to converge towards more normalized levels, but will remain far higher than rates currently exhibited by credits such as Mexico and South Africa for the foreseeable future. Emerging markets will at some point again face external shocks, whether political or economic in nature. Nevertheless, the dramatic pace of reserve accumulation in recent years seems to suggest that most EM credits are better equipped to deal with some of the negative effects that may arise.

Emerging market domestic bonds

Domestic bond markets are experiencing unprecedented growth. Emerging market (EM) credits are expected to fund more than 90% of their financing needs in 2007 by increasing net domestic issuance by a staggering USD 228 billion. The largest issuances in Europe, the Middle East and Africa (EMEA) and Latin America will come from Poland and Brazil with close to USD 31 billion and USD 22 billion, respectively.

Juan Briceno, Credit Analyst, **Dr. Jeremy J. Field,** Credit Analyst

It is not well known that in the emerging market space the outstanding stock of domestic sovereign debt is approximately three times as large as the stock of sovereign external debt. By the end of 2006, total domestic debt amounted to approximately USD 2.4 trillion, with Asia and Latin America the most active issuers of domestic bonds. Domestic sovereign bond markets have experienced rapid growth in the past, benefiting both issuers and investors. Issuers have been successful in increasing and/or diversifying their funding base, whereas investors now have access to local-currency-denominated instruments, which often offer attractive real yields. Local debt markets have grown by an impressive 250% in the past nine years, whereas the size of the external hard currency universe has actually shrunk. Total external debt has fallen from USD 903 billion in 1998 to USD 828 billion, as emerging credits have retired old restructured debt and initiated a broad deleveraging strategy.

Not too long ago, domestic markets were seen as a realm where only sophisticated institutional investors dared to venture. This has gradually changed as the individual investor has become better informed and as the search for yield has intensified, given the relatively low rates in the developed world. From this perspective there is a group of emerging domestic markets that command particular interest; they include Brazil in Latin America and Turkey and South Africa in the EMEA region. There is another group of domestic markets that do not offer such attractive carry opportunities, but where investors have sought exposure. Attracted by the better credit ratings and diversification benefits, investors have increased their holdings of domestic bonds issued by relatively new members of the European Union (EU) such as Hungary and Poland. While not a member of the EU and with persistently negative real rates, Russian local markets continue to captivate some investors who feel the current economic boom is still in its early stages and that the ruble remains fundamentally undervalued.

Driving forces behind local market development

Emerging market credits are no strangers to economic and political volatility, which many policymakers have seen as a natural consequence of excessive dependence on foreign flows of capital and too much intromission by multilateral financial institutions in domestic issues. The political need for greater economic and financial independence without negating globalization and the will to minimize the negative consequences of external shocks have led to a major

Table 1

External and local leverage ratios

The stock of sovereign external debt as a proportion of GDP in large Latin American credits is generally lower than that of Eastern European credits. Nevertheless, Mexico (BBB/BBB) and Brazil (BB/BB) are rated lower than credits such as Hungary (BBB+/BBB+) and Poland (BBB+/A-), as investors still perceive a meaningful policy direction risk in Latin America.
Source: Credit Suisse

Sovereign debt % of GDP	1998 External	2000 External	1998 Domestic	2000 Domestic
LATAM				
Brazil	11.7	6.8	33.9	55.1
Mexico	22.0	8.2	9.1	16.5
EMEA				
Russia	61.1	4.4	8.7	4.1
Turkey	26.4	22.4	18.5	45.2
Poland	20.3	19.5	20.2	31.4
Hungary	24.1	22.1	37.0	46.4
South Africa	2.2	4.6	46.7	28.7
ASIA				
Indonesia	72.2	21.9	47.1	12.9
Philippines	35.3	40.8	32.3	38.3

Table 2

Selected economic indicators

Most credits have been successful in bringing down inflation and continue to converge to inflation rates observed in developed markets. The notable exception is Russia where the price level remains relatively elevated at close to 9%. External performance is not homogeneous with commodity exporters such as Russia and Brazil exhibiting large and growing current account surpluses. The remaining credits show deficits, which can be large as in the case of Turkey and Hungary. Source: Credit Suisse

	Population (million)	Per capita GDP (USD)	General government debt (% GDP 2006)	Current account balance (% GDP 2006)	Consumer Price Index (%)
Brazil	179.6	3021	72.0	1.2	3.1
Hungary	10.1	5129	68.5	–7.6	6.5
Mexico	108.9	6125	34.3	–0.5	4.1
Russia	142.8	2116	10.6	10.4	9.0
Poland	38.5	4927	48.8	–1.7	1.4
Turkey	74.1	2101	61.7	–8.7	9.7
South Africa	48.4	2569	31.6	–5.8	5.8

push in the development of local capital markets. Brazil is probably the most notable example of this effort, which intensified as a result of the "Lula crisis" in 2002, when Brazilian spreads on hard currency bonds rose to almost 2500 basis points. As a proportion of gross domestic product (GDP), local markets now stand at 55% **(see Table 1)**, or 13 percentage points higher than in 2002. Similarly, the total outstanding stock of local sovereign debt currently amounts to an impressive USD 500 billion, most of which is in the form of fixed-rate bonds or instruments tied to the short-term benchmark rate (Selic, the Banco Central do Brasil's overnight lending rate).

Despite the fact that policymakers have not recently shown much interest in further domestic market development, Turkey has experienced one of the fastest growth rates in this space since 1998. In nominal terms, Turkey's local market is about a third of the size of Brazil's market or approximately USD 175 billion. However, Turkey is a good example for policymakers of how a reasonably developed and healthy local market does not amount to having an insurance policy that will completely insulate the credit from adverse shocks. In the absence of a strong anchor, external imbalances can and usually do lead to foreign exchange volatility, with adverse consequences for inflation dynamics. After the speculative attack on the Turkish lira last summer, local short-term yields rose by more than 900 basis points to almost 25%, and the currency depreciated by approximately 35% in less than two months. However, it is reasonable to make the argument that increased reliance on local debt protected the fiscal accounts from sharp deterioration, given the limited impact of external debt service payments on government expenditures.

Local yield curves normally have a relatively low duration issuance profile. Issuance has traditionally concentrated on short-duration securities with the occasional long-duration bond, where liquidity is not always available. The need to finance a varied number of long-term projects and in particular the desire to develop a mortgage market that allows the rapid development of the housing sector, has encouraged governments to start issuing longer-dated securities. To ensure that key maturities develop as benchmarks, issuance amounts now tend to be larger than in the past, and re-taps of specific bonds are commonplace. Mexico and Russia are some of the credits with the most established yield curves at the long end. While the duration extension of the Russian curve does not appear to be highly related to the development of the housing market, the Mexican curve has extended partly in response to a carefully crafted plan by the government to make housing affordable for the average Mexican over the next few decades. In the last 12 months, Mexico has issued approximately USD 11 billion in peso-denominated government bonds (MBONOS) with maturities ranging from 2023 up to 2036. Similarly, Russia has issued a fair amount of long-duration securities, with the lion's share of the issuance concentrated in the 2021, 2024 and 2036 government bonds (RFLBs).

Investors have noticed improved EM fundamentals

Demand for EM domestic bonds has gradually increased as investors have come to realize that the meaningful improvement in economic fundamentals may be long-lasting. High growth rates, sound fiscal accounts and large external surpluses have encouraged investors to migrate from hard currency debt into local currency instruments. Credit risk perceptions have improved so much that investors are now willing to add currency and local regulatory risk

dimensions. The 2003 – 2006 compounded annual real GDP growth rates posted by high-beta credits have indeed been impressive. Turkey and Argentina for example have grown by 6.6% and 9.1%, respectively, over the aforementioned period. Brazil on the other hand has been a notable laggard with just about 2.7%. Such low growth may partly explain the puzzle of persistently high real rates in reals, to the extent that sluggish growth has maintained gross debt levels, as a proportion of GDP, at relatively high levels. However, given a reasonably benign macro backdrop, it is precisely the very high real yields offered by some credits that act as a powerful magnetizing force on investors.

"There is no such thing as a free lunch," and if a credit offers very high yields, there are usually good reasons for it. Brazil and Turkey currently offer the highest rates in the emerging market space, with one-year real rates at approximately 8.5% and 12.5%, respectively **(see Figure 1)**. This compares favorably not only with rates in other emerging market credits but also with rate levels in core markets. Similarly, South Africa is an interesting market in that it is an investment grade credit and currently offers attractive yields, given its relatively high ratings. Short-term real yields have risen sharply in the last 12 months and are currently close to 4%, but unhedged foreign investors have experienced large negative total returns as a result of the 25% depreciation of the South African rand since April of last year.

Regarding external balances, Latin America, previously a region prone to recurrent balance of payments crises and maxi currency devaluations, is currently enjoying a healthy surplus. Reserve accumulation has accelerated **(see Figure 1)**, with Brazil and Mexico boasting a combined "war chest" of close to USD 160 billion. With the notable exception of Russia, EMEA credits suffer from acute external imbalances, which in the case of Poland and Hungary have not led to sharply rising yields or rapidly falling currencies thanks to the anchor provided by European Union membership **(see Table 2)**.

Local market instruments

There is a growing trend in the market where AAA-rated issuers such as supranationals and government agencies are tapping Eurobond markets with local currency issues. The European Investment Bank and KfW (development bank) are now relatively popular issuers in still somewhat exotic currencies such as the Turkish lira, the real, the rand and the Mexican peso. Investors must be aware, however, that issue size and secondary market liquidity is not always ideal. Investors usually have exposure to local markets through these instruments, but this has been changing as a result of positive regulatory changes that allow full and easy access to local capital markets. Investors must exercise care in deciding whether to have exposure through onshore or offshore securities, as there can be large yield differences between bonds of similar duration. In Brazil for example, it is somewhat surprising that yield differentials between the onshore and Eurobond curves have widened since last September. There is a rating effect, which sometimes helps explain yield differentials, but this is not always the case. The BRL Brazil 2016 and the locally issued BNTF 2014 are bonds with similar duration and the same credit risk but with a yield differential of close to 240 basis points. Withholding taxes and account confidentiality issues were two notable market imperfections that previously explained a chronic yield gap, but fortunately they do not exist anymore. ■

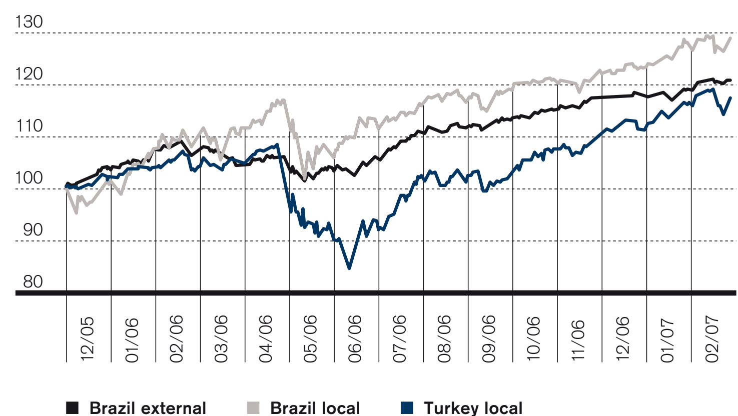
Covered interest parity

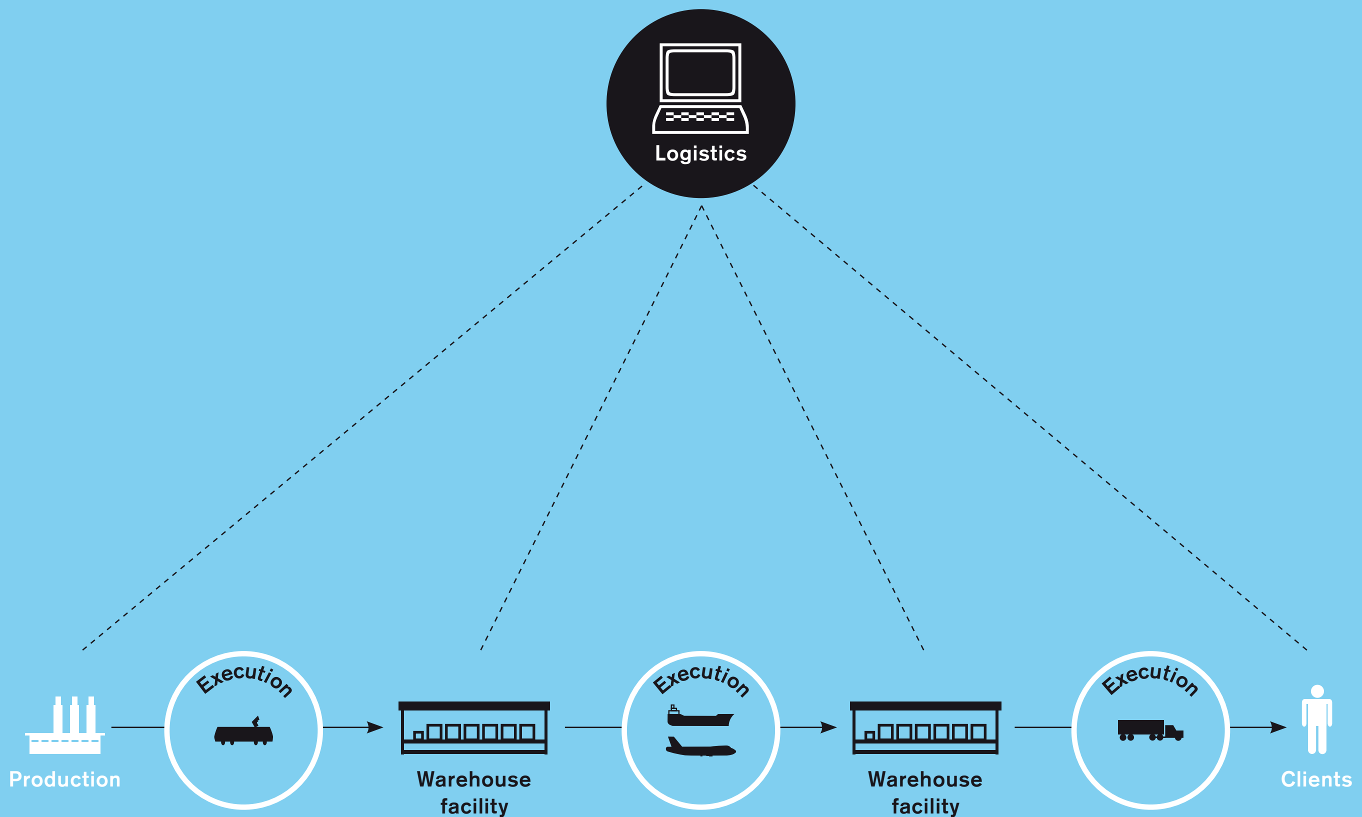
Covered interest rate parity suggests that we should expect the domestic currency to depreciate in line with interest rate differentials so that investors are only compensated for the additional credit and regulatory risk assumed by holding a local bond. Indeed currency forwards are priced in such a way that virtually no arbitrage or excess returns can be generated over time. However, investors have captured excess returns in an uncovered way. For example, an investor holding a basket of Brazilian local bonds without a currency hedge would have outperformed a similar basket of Brazilian hard-currency bonds by close to 8% since December 2005 **(see Figure 2)**. Going forward, future returns in local debt should normalize as a result of mild currency depreciation. This suggests that investors are likely to favor local markets where monetary conditions are supportive enough for further inflation convergence and the external accounts are in surplus or at least the flows financing any deficits are relatively stable.

Figure 2

Local markets' performance should remain strong

Excess returns in local markets relative to hard-currency bonds are likely to be smaller going forward. The handsome rewards investors have been reaping do not come without risks. Turkey exhibited total return swings of more than 20% last summer. Source: Credit Suisse, Bloomberg





Globalization driving logistics

Global trade volumes have surged in the last five years. Logistics companies have been one of the main beneficiaries of this trend. The drive for further globalization should continue to underpin strong demand for logistics expertise and facilities in the future. Investors can participate in this theme by investing in asset-light freight forwarding providers, asset-intensive executers as well as providers of warehousing properties.

Markus Mächler, Equity Sector Analyst, **Eric Güller,** Equity Sector Analyst, **Bettina Simioni,** Global Real Estate Analyst, **Zoltan Szelyes,** Global Real Estate Analyst

The world economy is being transformed by the global expansion of trade flows: since 2003, global goods export growth has reached an average of +8% per annum (p.a.), far above global economic growth of +4.5% p.a. Trade volume growth has thus significantly accelerated. **Figure 1** shows world exports of goods and services in real terms as a proxy for global trade volumes. In this new worldwide market, emerging markets (EMs) play an ever increasing role: since 2000 they have accounted for roughly two-thirds of world economic growth compared to 55% in the 1990s and less than 50% in the 1980s. The emerging markets' share in global trade has increased significantly, as many countries have capitalized on competitive advantages to boost exports. Parallel to EMs' rising share of global production, some Western countries, like Germany or Switzerland, have benefited from their specialization in production infrastructure, advanced machine tools, and logistics management to increase their exports to new rising EM industrial stars. As a result, demand for infrastructure and Western demand for logistics to cope with rising imports has surged.

While global trade has created increased demand for logistics services, the internationalization of production processes has had a profound impact on logistics management. The complexity of global distribution networks call for ever more sophisticated logistics services, embracing a variety of transportation forms (such as rail, road, air or sea freight transport channels) and a multitude of production interfaces. Looking to the future, we see further robust demand growth for logistics services. In Asia, we expect continued strong growth in China, increasingly a manufacturing hub for the world. China has become the world's third largest exporter, accounting for 8% of global exports, and we expect its share to continue rising. China is also increasingly focusing on purely domestic infrastructure, which is still in its infancy, and requires significant logistics support. In many less developed countries only starting to participate in world trade, such as Vietnam, the very low infrastructure and service bases usually translate into full outsourcing of the logistics process to foreign corporations. Emerging markets are not the only drivers for logistics. In Europe too, export growth of machinery and production devices to EMs also increases the need for logistics. Another significant factor of change in the logistics landscape is the enlargement of the European Union towards the East. With Bulgaria and Romania's entrance into the European Union (EU), the economic integration of the Eastern European states brings an extension of the existing distribution networks and increases demand for warehousing. New strategic locations are emerging, competing with the established ones, as Western companies relocate their production to those parts of Europe with low labor costs.

Growing logistics demand drives specialization

The transportation industry is heavily fragmented with only a few global players but many regional and domestic operators. Growing logistics demand has led to both specialization and consolidation. Overall, the logistics industry has developed into the following subsegments: the service providers, the executers, and the providers of warehousing property. The service providers coordinate the logistics process, while the executers transport the goods from location A to B. As production chains start to spread globally, in-house as well as external logistics become ever more complex. With their focus on cost-efficient production, companies therefore tend to outsource logistics to third-party providers. There exists a full range of logistics operators from companies focusing on freight forwarding brokerage only, such as Panalpina, to fully integrated logistics providers such as Deutsche Post. The advantage of asset-light logistics providers such as Panalpina is their flexibility. By using third-party resources, they are very flexible in adding destinations to their portfolio according to customer needs. In some regions like Eastern Europe, access to third-party resources might become challenging. Kuehne + Nagel therefore decided to acquire some land, including assets, which was perceived as a strategy change by some investors. The third segment, the emerging warehousing market, is benefiting from a trend towards outsourcing logistics property. A.P. Møller-Maersk is a global leader in fully integrated

Figure 1

Surge in global trade

The aggregated value of global export activity has surged in real terms in recent years. The growth of real global exports can be used as a proxy for global trade volumes and indicates the growth of global trade.
Source: Datastream, Credit Suisse

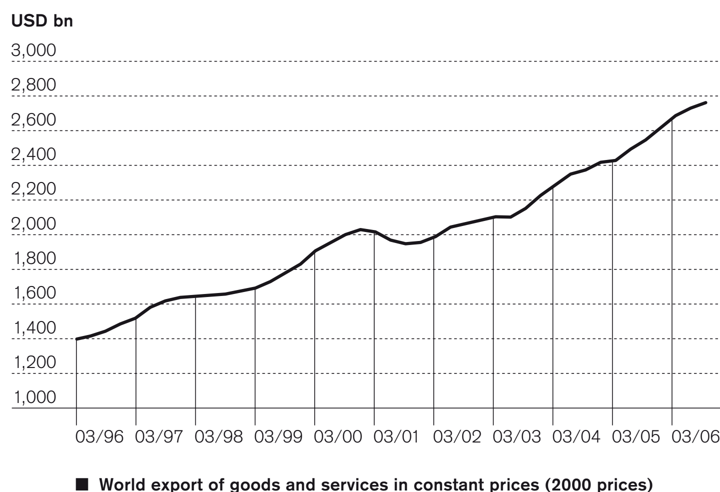


Figure 2

Leasing rental cycle for warehouses

The rental cycle for logistics warehouses is currently attractive globally. Rents have either bottomed out or have started to increase again. Source: Credit Suisse

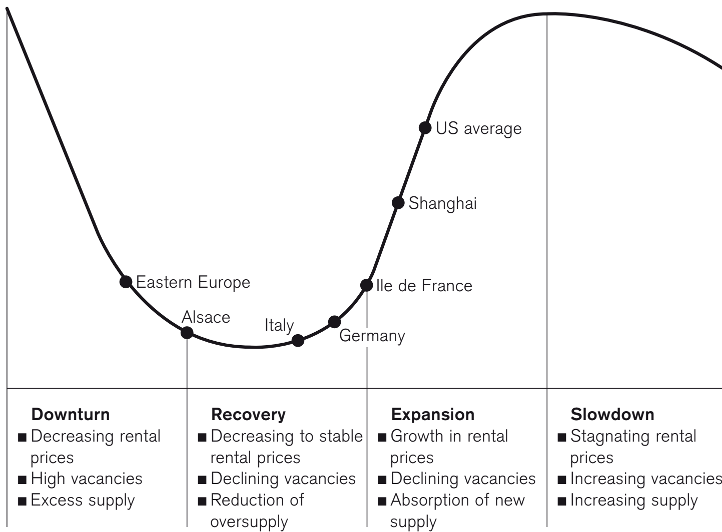
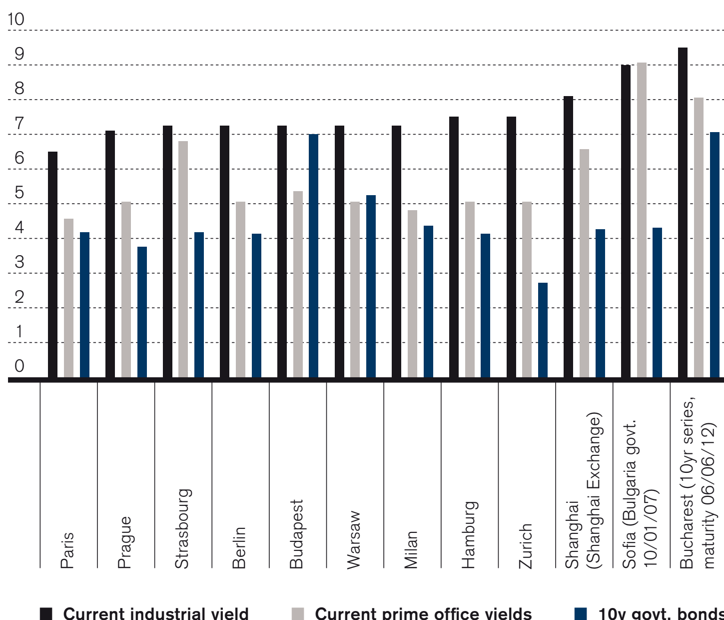


Figure 3

Warehouse yields

Purchasing yields for logistics warehouses are still significantly higher compared to the office sector. As the investment markets mature, warehousing capital values are expected to grow and purchasing yields to decline. Source: Cushman and Wakefield, JLL, Credit Suisse



transportation. Its portfolio includes everything from oil fields to container shipping and facilities. As long as demand is rising ahead of new supply, the pricing situation is favorable. In our view, 2006 marked the peak, since more new capacity, mainly in overseas transportation, is coming to the market. Capacity expansion for container shipping is expected to rise by 12.5% in 2007 after increasing 13.8% last year. Airline transport capacity is expected to improve by 5.1% after 3.6% last year. Pricing power has already started to fade on main transportation routes, with an immediate effect on the bottom line. Besides transportation, the most important physical component in logistics operations is warehouse real estate. Up to the present, warehouse real estate has mainly been owner-occupied. But recently, there has been an emergence of sale and leaseback agreements, which result in a transfer of ownership and management to specialist real estate companies. We see this trend of efficient sharing of competences continuing in the next few years. As logistics providers expand internationally, competition intensifies and economies of scale appear. There is thus a consolidation process underway in the logistics sector, which has led to stronger demand for larger warehousing units.

Logistics real estate as a new investment theme

This change in the logistics real estate landscape offers potential for real estate investors. Due to the relatively high rental yield levels in the sector (6.5%–8%), investors can benefit from relatively high income returns. Investors are also exposed to changes in capital values. This can come from one of two sources: either a change in rents or a valuation change in property (for instance due to higher demand, rising real estate prices, etc.). The latter is usually called a change in purchasing yields or yield shift. We think that investments in warehouses are supported globally, yet we would focus on investments and developments in Continental Europe and Asia, as investors are likely to benefit from capital appreciation due to stable-to-increasing rents and a further expected yield shift.

Global rental cycle attractive

Investments in logistics real estate should find support in the segment's currently attractive position in the rental cycle. In almost all regions, warehousing rents are increasing or have started to bottom out **(see Figure 2, illustration of the global rental cycle)**. In the USA, the cycle for warehouse rents is the furthest advanced. However, the outlook is still positive for 2007 and 2008, with an expected annual growth rate of warehouse rents between 5% and 6%.

Pickup in warehouse demand in Western Europe

The warehousing rental cycle in Europe has just passed its bottom. Warehouse rents in Europe have fallen due to supply overhangs in the last five years. Driven by a pickup in demand, rents have begun to bottom out and have been stable in Central Europe over the last year. In France's most important logistics area, Ile de France, they have already started to increase again. Based on our forecast of robust demand, we are expecting rents to remain stable or to increase slightly throughout Europe in the year ahead. This pickup in rents should also find support in strong investment demand. Yields for logistics real estate have thus started to fall. Since we expect the warehouse investment sector to continue to mature, we foresee a further drop in yields. In Germany and Italy yields are currently around 7%–8%, which we still consider to be an attractive level. In France, yields are lower at 6.5%–7.5%, but the rental growth up-

side in the coming years should be higher than in Germany. Based on our expectations for stable-to-slightly-increasing rents and a further decrease in yields for warehouses, we see further potential for investments in Germany, Italy and France. In France, we favor the long-established Ile de France region and the Alsace, the latter mainly due to its favorable location and a relatively low cost structure (labor). Northern Italy is also likely to profit from the eastward expansion, thanks to intensifying trade flows from Eastern to South West Europe (Southern France, Spain) and vice versa.

Potential for warehouse development in Eastern Europe

The Eastern European markets are still immature and characterized by a low supply of modern logistics facilities. But we expect the strong economic momentum in Central and Eastern Europe (CEE) to lead to stronger demand dynamics and convergence with the rest of Europe. As **Figure 3** on page 28 shows, warehouse purchasing yields in Prague, Warsaw and Budapest are already at the level of German cities. Yields in Bulgaria and Romania are still higher and are trading with only a small premium to the office sector. Due to low warehouse stock and strong expected demand growth, we would recommend investors to focus on warehouse development projects in Eastern Europe.

Asia: China (Shanghai) has a strong growth outlook

In China, we expect strong growth in the logistics market in the years ahead, since it is still underdeveloped relative to Chinese trade volume. Over 85% of warehousing facilities are concentrated on the coast and are mainly focused on export logistics rather than domestic retail logistics. While export logistics make up the largest part of the distribution network, we also expect retail distribution networks to expand around Shanghai, as incomes and retail sales are on a strong uptrend. We see the coastal areas as the most attractive, since high market fragmentation, high regulation, regional politics and border controls are still hindering the creation of an integrated national logistics network. Shanghai is the most developed market and is expected to grow further in the next few years, as it is favored by international operators and developers. Shanghai yields for logistics properties are trading between 8% and 9%. This still-high yield could be explained by the fact that investors are just starting to discover the potential of the warehouse market and until now have been focused on office and residential investments. However, the presence of international investors and developers is expected to increase, resulting in higher capital values and lower yields. Due to the high demand dynamics, the logistics sector in Shanghai is also expected to find support in further rent growth.

Investing in a growth market

The outlook for global trade remains favorable in most regions, and logistics services should strongly benefit from this secular trend. The coordination and transportation complexity arising from globalization leads to further outsourcing, which in our view is unlikely to change soon, as producing companies tend to focus increasingly on their core businesses. Investors who want to gain exposure to the logistics theme can do so by investing in logistics services, executers or warehousing real estate companies. As all three subsegments are benefiting from the globalization trend, all look attractive and offer strong long-term growth. Warehousing is probably the most defensive way to gain exposure to the logistics theme, while executers will likely be the most volatile investments. ■

Table 1

Investing in the logistics theme

Logistics services, executers and warehousing real estate companies are benefiting from the globalization trend and offer strong long-term growth. Source: Bloomberg, Credit Suisse

Bank	Rating	Investment thesis
Panalpina (PWTN SW)	BUY	Offers the most appealing business strategy in the freight forwarding industry, with its asset-light company structure.
Kuehne + Nagel (KNIN SW)	HOLD	Aiming for a more fully integrated business structure and adding fixed assets to its existing business portfolio.
Deutsche Post (DPW GR)	BUY	Already offers the full range of services, from brokerage to transportation and express delivery.
A.P. Møller-Maersk (MAERSKB DC)	HOLD	A pure executer focusing on sea freight service.
Prologis (PLD US)	BUY	One of the leading global providers of warehousing properties with large development projects in under-equipped emerging markets, such as China and Eastern Europe.

The above recommendations represent our mid- to longer-term investment view at the time of writing and are subject to change depending on market conditions. Please contact your relationship manager for regular updates on specific companies.

Invest in superior business models

Taking advantage of a robust economic environment, Swiss small and mid-cap companies have generated above-average shareholder returns in recent years. We expect them to continue to deliver solid long-term investment performance thanks to innovation, focus, and superior business models with a proven ability to adapt to changing global industry dynamics.

Robin Seydoux, Head of European Equity Sector Research, **Markus Mächler,** Equity Sector Analyst, **Olivier P. Müller,** Equity Sector Analyst

Credit Suisse maintains its positive stance on global equities. We believe the world is primed to experience robust economic growth in the years to come. Globalization, and in particular the urbanization of emerging market countries like China, has helped fuel a surge in global productivity growth. These forces are expected to remain in place and magnify opportunities in the market. With a forecast expansion of 5% this year after 5.2% in 2006, 2007 is set to be the fifth year in a global boom. The slowdown that we experience may turn out less pronounced than most market participants fear. By mid-year we expect a re-acceleration, as long-term trends like infrastructure spending in emerging markets will likely gain momentum again. So much growth from outside the industrialized world bodes well for corporate earnings, which are expected to continue to grow above historic averages worldwide. Equity markets should also benefit from undemanding valuations with estimated 12-month forward price-earnings (P/E) ratios close to their long-term averages in Europe and in the USA.

Switzerland benefiting from bias towards exports

Along with its European neighbors, the Swiss economy is benefiting from the integration of emerging markets into the world economy, a process which has spurred international trade volumes. Moreover, its bias towards exports offers a superior risk/reward profile. The Swiss economy benefits from low unemployment, low inflation and strong exports (40% of GDP is export-related). According to our forecasts, these advantages should enable the Swiss economy to post superior economic growth compared to Continental Europe. Following its impressive performance since 2003, we expect the Swiss stock market to continue to do well in the years to come, thanks to a strong global macroeconomic backdrop. In terms of forward P/E (for fiscal year 2007), the Swiss Market Index is trading at a premium to the global market, particularly versus European markets. We think this premium is justified, given the market's higher expected earnings growth rate of more than 10% for the current year.

Swiss small caps: Focus on superior business models

Small caps normally perform well in an environment of healthy global and domestic economic growth. Although they trade at a premium to large caps in most regions, they should continue to benefit not only from attractive financing in a low-interest-rate environment but also from investors' risk appetite. Within the Swiss small and mid-cap landscape, we favor companies that are innovative, focused, exposed to foreign markets, with superior business models, and a proven ability to adapt to changed industry dynamics. In Switzerland, we highlight Hiestand, Calida, Geberit, AFG Arbonia-Forster, Georg Fischer and Komax.

Hiestand

Hiestand is a leading producer of frozen and convenience bakery goods. Founded in 1967 as an innovative pioneer baking company, Hiestand has achieved a leading position in the Swiss specialty foods segment and was listed in 1997. We are impressed by Hiestand's excellent business model, which includes both a production and distribution platform, meaning that Hiestand owns its production facilities and controls the logistics from the bakery to the end-consumer. Hiestand's product range consists of different bakery products broken down into various stages of completion. Hiestand uses its own logistics and distribution network to deliver its products to its customers: convenience stores, gas stations, food retailers and caterers. Hiestand operates mainly in Switzerland and Germany and to a lesser extent in Asia. Owing to its superior model, Hiestand has higher organic sales growth rates and better profitability than the sector average.

Calida

Calida is a clothing retailer and manufacturer which has successfully managed to adapt its business model over the last few years. Founded in 1929, Calida was a traditional Swiss producer of underwear and sleepwear. Over the last few years, Calida has changed its business model from a pure manufacturer to a brand owner and marketer and outsourced a major part of its production facilities to Southern and Eastern Europe and also Asia. Today, Calida focuses more on branding, design, product development and sales strategy than pure production. In 2005, Calida acquired and integrated the French company Aubade and introduced a similar outsourcing strategy. We are impressed by Calida's turnaround over the last five years, its successful repositioning in the retail clothing sector and its innovative product lines. We believe that soon they will have outsourced all of their production capabilities and think that this strategy is likely to translate into sustainably higher operating margins in the near future.

Geberit

Geberit is a Swiss company that has successfully transitioned itself from a traditional manufacturer of sanitary plumbing to a company producing more and more systems for domestic water management. It has successfully introduced its innovative water management systems into its core markets Switzerland and Germany, and we believe that its expansion into new markets such as Eastern Europe and Scandinavia will be an additional positive catalyst, further boosting sales growth. As water becomes increasingly scarce in both emerging and developing countries, we believe that Geberit's water-conserving sanitary systems will experience strong demand from these countries.

Georg Fischer

Georg Fischer is a leading development partner and system provider for industrial applications focused on automotive activities, piping systems and machine tools. GF Automotive, with its focus on high-performance cast components and systems in iron and light metals for chassis, power trains and bodies, benefits from the ongoing need for lighter and safer car bodies. Given its technological know-how, Georg Fischer enjoys strong pricing power. GF Piping Systems currently benefits from favorable conditions in the European construction industry, which are expected to continue in the medium term. Supported by good market conditions, Agie Charmilles (machine tools) has recovered from a loss-making period and now underpins our positive stance on Georg Fischer overall.

AFG Arbonia-Forster

AFG Arbonia-Forster is mainly exposed to the Swiss (45% of sales) and German (35% of sales) building and construction markets. With its radiator activities, the company also has some exposure to the Czech Republic construction market, and is gradually increasing global exposure. AFG Arbonia currently provides its full product range of radiators, kitchen cabinets, cooling appliances, windows, doors and steel tubing in Switzerland only. CEO Dr. Edgar Oehler is following a very aggressive growth path with frequent acquisitions, constantly expanding the company's product offering in an effort to enhance its "one building – one shop" strategy. We prefer AFG Arbonia because of its core competence in heating and sanitary equipment, kitchen fixtures, cooling appliances, steel technology, windows and doors, as well as surface technology. We also find the company's successful expansion and integration of complementary activities attractive.

Komax

Komax is the global leading supplier of wire processing machines (WPMs), having entered the assembly automation business in 1998. WPMs provide 60% of turnover and are the company's cash generator. With a market cap of around a half a billion Swiss francs, Komax belongs to the small-cap segment in Switzerland. It enjoys good growth potential thanks to its increasing exposure to the solar (photovoltaic) industry through its advanced automation tools. Other areas of activity include the medical technology market and the telecom industry. We find Komax attractive due to its fundamentally solid cash generative business in combination with growth areas likely to boost top line performance in the longer term. ■

Figure 1

Swiss small and medium-sized companies

Since their lows in 2003, Swiss small and medium-sized companies have performed well relative to large-cap stocks. The main drivers have been the economic upturn, a period of low interest rates and increased investor risk appetite. Source: Credit Suisse, Datastream

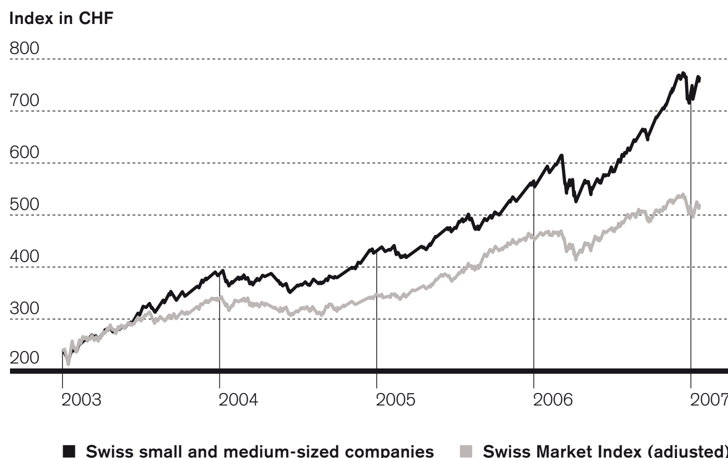


Table 1

Focus on superior business models

Small caps normally perform well in an environment of healthy global and domestic economic growth and, in our view, should continue to benefit from attractive financing in a low-interest-rate environment and from the increasing risk appetite of investors. Source: Credit Suisse, Bloomberg

Name	Sector	Rating	Bloomberg Ticker
AFG Arbonia-Forster	Capital Goods	HOLD	AFG SW
Calida	Textiles	BUY	CALN SW
Geberit	Capital Goods	BUY	GEBN SW
Georg Fischer	Capital Goods	BUY	FI/N SW
Hiestand	Food Products	BUY	HIEN SW
Komax	Capital Goods	BUY	KOMN SW

The above recommendations represent our mid- to longer-term investment view at the time of writing and are subject to change depending on market conditions. Please contact your relationship manager for regular updates on specific companies.

Photo: Bildagentur Online

Square of the Republic, Almaty, Kazakhstan

The Northwest Passage

Global warming has considerably shrunk the average area covered by the Arctic sea ice. The accelerating melting ice phenomenon, particularly evident in Canada's northern Arctic, "warms up" the prospect of a shorter alternative sea route from Europe to Asia. Increasing visibility on the opening up of a "Northwest Passage," a treasure many have coveted for centuries, could potentially have mammoth ecological, economic and political impacts.

Arjuna Mahendran, Head of Asian Research, **Maggie Yeo,** Equity Sector Analyst, **Justin Nankivell**[1]

Continuous permafrost, which results in the permanent presence of hard and thick sea ice on the entire Arctic basin, is unique to the polar region. Rising global temperatures have been adversely affecting the ecological systems of the Arctic region, including atmosphere, ocean, sea ice cover and land area.

The year 2005 was the warmest in more than a century

Both empirical and recent scientific research of the Arctic region has revealed continued warming permafrost temperatures in northwest Canada. This warming has led to declines in the extent of sea ice cover and increased the greenness in tundra regions over the past several decades. A more recent analysis on the state of the Arctic undertaken by the National Oceanic and Atmospheric Administration (NOAA), a federal agency within the US Department of Commerce, found record-high surface air temperatures in 2005, the highest in more than a century. Climatologists at the NASA Goddard Institute for Space Studies (GISS) have ranked 2005, 1998, 2002, 2003, and 2006 as the five warmest years in descending order since the late 1880s. **Figure 1** shows that the accelerating trend in climate warming has been most pronounced in northern latitudes.

The sea ice extent and sea ice thickness are generally viewed to be negatively correlated to the conditions of the ocean and atmosphere temperatures. During the 1979–2005 period, the mean sea ice extent for September (end of the melting season) and March (end of the frost season) totaled 6.9 million square kilometers (km^2) and 15.7 million km^2, respectively **(Figure 5)**. NOAA's results provided compelling evidence that the sea ice extent in September 2005 (5.6 million km^2) and March 2006 (14.5 million km^2) was at its lowest levels for the 1979–2005 period. These results further revealed that the Arctic's sea ice extent at the end of the melting season (month of September) had declined by 7% per decade during this period, corroborating the intense sensitivity of the polar region's physical conditions to climate changes. Moreover, the ice at the center of the Arctic Ocean is up to 40% thinner than it was in the 1980s.

The holy grail of the Arctic

The Suez and Panama Canals are the common water routes connecting Asian countries to markets in the United States and Europe. The Suez Canal can accommodate larger ships, including aircraft carriers and supertankers, while the Panama Canal does not have this capacity due to the presence of locks. In 1999, 13,003 ships passed through the Panama Canal compared to 11,280 ships through the Suez Canal. However, only 196 million tons of cargo passed through the Panama Canal compared to 386 million tons via the Suez Canal. World container traffic is expected to rise progressively over the years, implying intensifying traffic volume through these canals, particularly the Panama Canal, where a canal expansion proposal has been submitted for approval **(Figures 2 and 3)**.

Recent structural environmental changes, particularly the shrinking of the land area covered by polar sea ice and the thinning of the sea ice, could fundamentally affect marine transportation and commercial shipping around the Arctic basin. Within the Arctic lies the legendary Northwest Passage, known as "the holy grail of

Source: Athropolis Productions Limited

Figure 5

Northwest Passage route

Made possible by receding ice sheets, the Northwest Passage route extends from Baffin Bay (BB) in the east to the Bering Strait (BS) in the west, through the Arctic Archipelago (AA), to the north of Canada (C) and along the northern coast of Alaska (A).

the Arctic." The key impediment preventing ships from traversing the Northwest Passage has always been ice. Floating ice or icebergs can bring hazards for ships, as it did for the Titanic. The Northwest Passage is a sea route connecting the Atlantic and Pacific Oceans through the Arctic Archipelago of northern Canada and along the northern coast of Alaska, USA **(Figure 5)**. It extends from Baffin Bay (situated between West Greenland and Baffin Island) to the Bering Strait **(Figure 5)**.

In the 16th century, the idea of traveling to China and India by sailing across the North Pole became increasingly popular. Ever since then, explorers have been searching for the Arctic grail, a "shortcut" from Europe to East Asia through the American continent. The existence of such a shortcut route was proven in the early 19th century, but it was not navigated until 1903, when the Norwegian explorer, Mr. Roald Amundsen, successfully traversed the Northwest Passage in a 3-year voyage.

Considerable time and cost advantages

Throughout maritime history, the Northwest Passage has promised a potential oceanic bridge that could link the trading fortunes of Europe and East Asia. Marine transportation companies are aware that, if navigable, widespread use of the Northwest Passage would enhance global trade this century. Traveling along the Northwest Passage would effectively reduce the mileage distance required to move goods between the largest trading blocks in the world by almost half, meaning less shipping time, less manpower, fewer labor hours and lower maintenance and other time-sensitive variables in marine transportation. The mileage advantages of the Northwest Passage are shown in **Figure 4** and suggest that the potential savings offered by the Northwest Passage route are considerable. A Hamburg (Germany) to Vancouver (Canada) voyage via the Northwest Passage rather than through the second most attractive alternative, the Panama Canal, would entail a huge 24% savings in nautical miles. The Hamburg-to-Yokohama trip is more than 4,000 nautical miles, or 38%, shorter than the current Suez Canal route. With fuel costs ever increasing and the paramount importance of supply chain timing and coordination for economic growth in today's increasing globalization era, the Northwest Passage at face value could be said to represent the future of global trade.

Arctic region rich in hydrocarbon resources

In the late 1960s, energy companies displayed enormous interest in exploring the Arctic, after the discovery of oil at Prudhoe Bay, Alaska, in 1968. Subsequent exploration activities in the Canadian Beaufort and Russian Siberian regions have resulted in significant discoveries of oil and gas resources in the nearshore/offshore areas of the Beaufort Sea and also in the Siberian Sea region. Hydrocarbon reserves in these regions have been estimated to be comparable to those available in the Middle East. The United States Geological Survey (USGS) estimates that 25% of the world's undiscovered fossil fuels are located in the waters of the Arctic. The USGS is participating in the International Polar Year (2007–2008) to research "energy resources in the Arctic area including oil, gas, coal-bed methane and methane hydrates." This will build on the USGS's World Energy Project, a global attempt to discover untapped hydrocarbon fuel reserves.

The continued steady decline in the extent and thickness of Arctic ice cover could lead the way to the development of offshore oil drilling and production in the Canadian and Russian Arctic regions.

Figure 1

Annual mean temperature anomalies

Temperature anomalies in northern latitudes started diverging from other latitudes in the mid-1990s. This resulted in record-high surface temperatures in 2005, the highest in more than a century.
Source: The NASA Goddard Institute for Space Studies (GISS)

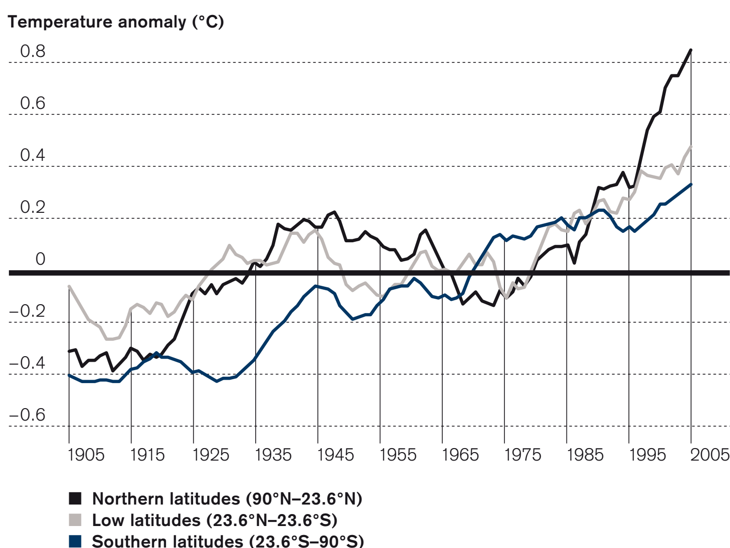
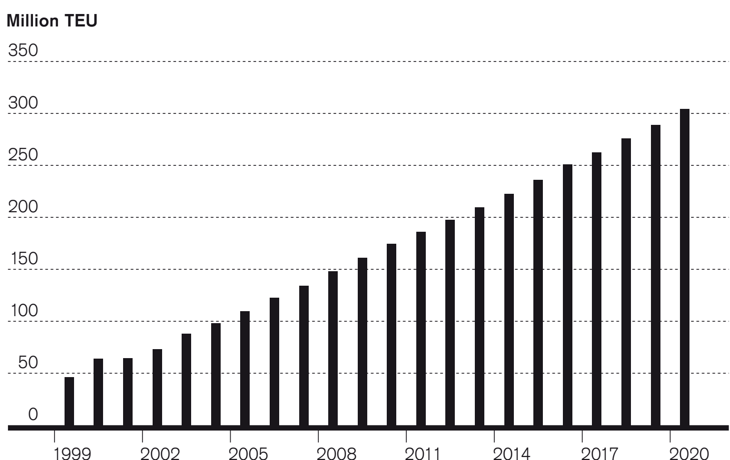
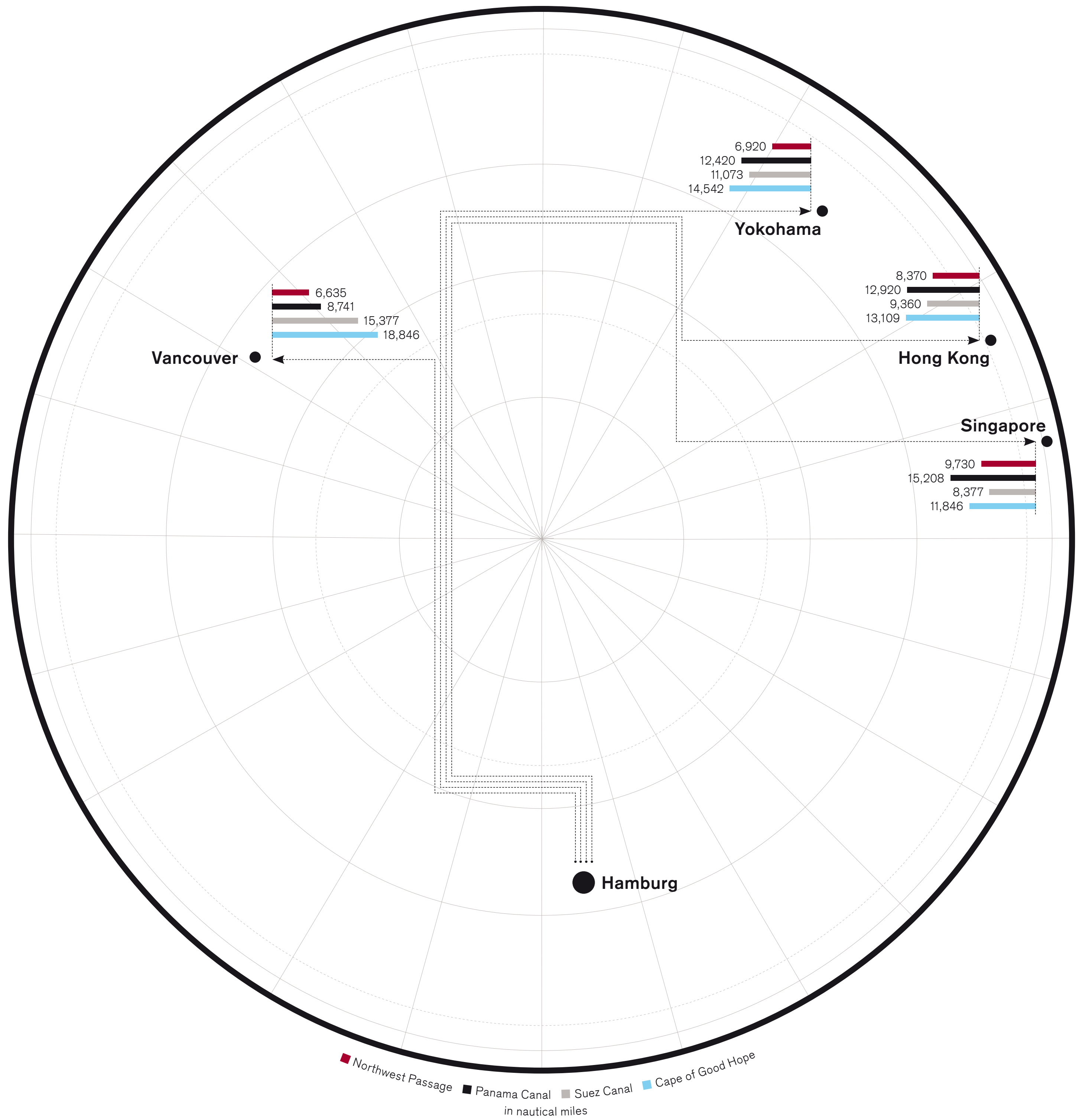


Figure 2

World container traffic

Consulting companies Drewry Shipping Consultant Ltd and Global Insight estimate world container traffic will exceed 300 million twenty-foot equivalent units (TEU) in 2020. Source: Drewry Shipping Consultant Ltd, Global Insight





Source: Ivanov, Y. and Ushakov, A. (1992), "The Northern Sea Route – Now open. International Challenges", 12(1): 15–20

Figure 4

Alternative shipping routes

Mileage distances to major seaports in the Pacific and Atlantic Oceans are greatly reduced via navigation through the Northwest Passage.

The lure of exploration, development, production and transportation of petroleum in the Arctic region amid escalating crude oil prices caused by the depletion of oil reserves elsewhere could be a major impetus for the opening of the Northwest Passage.

Legal conflict over the use of the Arctic's waters

There are, however, several obstacles to the opening of the Passage. The main unknown concerns how political bargaining and deliberation will unfold between Canada and other Arctic states, principally the United States, over the use of the waters. A second variable concerns the role that international law has played in Canada and the United States in making decisions about the laws of the sea in the Arctic region. Assuming that marine transportation would eventually be made available through the Northwest Passage, what rules would be set? And by whom? There would undoubtedly be a great deal at stake for both Canada and the United States, who have found themselves intertwined in a 40-year political and international legal conflict over the use of the Arctic's waters.

The future of the Northwest Passage

Early in 2006, Canada's Defense Minister opined that the Arctic could be opened to regular navigation by 2015. Reports by the United States Navy issued in 2001 concur that 2015 would see a seasonally "ice-free" Arctic. Recently, Canadian government scientists have concluded that "Arctic oscillation," a circular pattern of atmospheric winds and ocean currents, is pressing the main Arctic icepack against Canada's northwest Arctic boundary, preventing transit altogether. However, the Northwest Passage's expedition record set in 2006 by the Canadian ice-breaker Amundsen is noteworthy. The Amundsen departed for the Northwest Passage from Quebec City on 22 August 2006 and, as of 8 November 2006, the ship had traversed the worst of the Passage's ice chokepoints successfully, reporting no signs of ice even in the Passage's most critical places. Perhaps the year 2006 was an anomaly, or perhaps this signals the start of a melting process long predicted by climatologists.

The coordination of vessels, their timing in the maze of global supply lines and, above all, the forecasting of travel routes, are of paramount concern to major shipping companies. Furthermore, affordable insurance premiums remain a current and future obstacle. Evaluating the time frame under which commercial shippers could attempt navigating the Arctic route would involve calculations that take into account potential savings, insurance premiums, and the constant presence of open water. At this stage, until all the factors have been considered in their entirety and the necessary calculations made, it is probably too early to hail the Northwest Passage as the next international "navigation highway." However, it also bears noting that Royal Dutch Shell has contacted legal officials in the United States and commissioned an analysis of the legal dispute over the Northwest Passage with full knowledge of the statement put forth by USGS that the Arctic's waters contain an estimated 25% of the world's undiscovered fossil fuels. If feasible, major marine transportation and energy companies **(Table 1)** could be the direct beneficiaries of the opening of the legendary Arctic grail. ■

[1] **Justin Nankivell is a PhD candidate in political science at the University of British Columbia in Vancouver, and an instructor of International Security and International Organization at the University of Victoria, Canada. He holds a Masters of Public International Law from the University of Nottingham, UK.**

Figure 3

Capacity of Panama Canal

Panama Canal Authority expects a sizeable growth in tonnage transiting the Panama Canal from 2005 to 2025. This growth would be augmented with an expansion of the canal to accommodate larger ships. Source: Panama Canal Authority

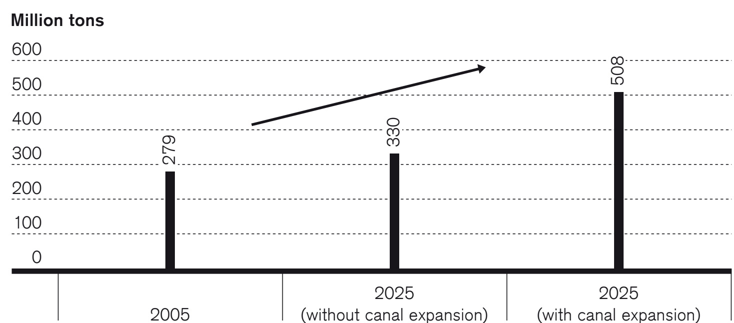


Table 1

List of marine transport and energy stocks

The opening of the legendary Arctic grail could provide new-found opportunities for marine transport and energy companies. Source: Credit Suisse

Sector	Name	Bloomberg Ticker	Rating
Marine Transport	A.P. Møller-Maersk	MAERSKB DC	HOLD
	Tallink Group	TAL1T ET	HOLD
	Kuehne + Nagel	KNIN SW	HOLD
	Panalpina Welttra N	PWTN SW	BUY
Energy	Petro-Canada	PCA CN	BUY
	Lukoil SP ADR	LKOD LI	BUY
	Rosneft	ROSN LI	BUY
	Petrobras ADR	PBR US	BUY

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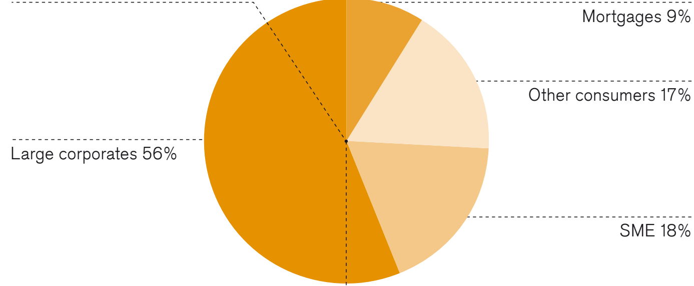


16
14
12
10
8
6
4
2
0

Maturing
Moderate growth
Very high growth
Developing

= Total banking assets in EUR billion

29.1 Slovenia
101.9 Czech Republic
11.8 Estonia
34.7 Croatia
78.4 Hungary
37.0 Slovakia
151.9 Poland
15.7 Latvia
13.0 Lithuania
16.8 Bulgaria
35.2 Romania
6.1 Bosnia and Herzegovina
2.3 Macedonia
3.9 Albania
9.0 Serbia
27.8 Kazakhstan

10 20 30 40 50 60

Assets per capita, 2005, (EUR 1,000)

Assets growth, 2003–2005 in EUR, (%)

Source: Intelace & Agency of the Republic of Kazakhstan on regulation and supervision of financial market and financial organizations (AFN), Central banks, Credit Suisse

Banking market with strong growth

We expect banking assets to grow substantially in future and per capita assets to pick up significantly. The retail banking segment is expected to post particularly strong loan growth.

Kazakh banks on the rise

Between 2000 and 2006, Kazakhstan's real gross domestic product (GDP) rose by 10% on average, making the country one of the fastest-growing economies worldwide. Rich reserves of accessible oil and other natural resources have turned Kazakhstan's economy into a success story. Local banks are among the main beneficiaries of rising living standards and improving international business.

Christine Schmid, Equity Sector Analyst, **Peter von Moos**, Junior Research Analyst

Kazakhstan covers an area of 2.7 million square kilometers and is the ninth-largest nation in the world. It is not the country's size, however, that makes Kazakhstan the envy of other emerging markets but the fact that its population of 15 million sits on an abundance of accessible mineral and fossil fuel resources. Increasing international demand for commodities has stimulated industrial activity and triggered local capital investment and foreign direct investment since the mid-1990s. With the turn of the 21th century, Kazakhstan started to reap the benefits of massive infrastructure investments. The oil industry has increased oil output by 100% from 0.7 million barrels per day (mbpd) in 2000 to over 1.4 mbpd currently, and the government plans to nearly double production again to 2.6 mbpd by 2015. The oil extraction industry is clearly the driver behind Kazakhstan's impressive GDP track record **(see Figure 1)**. According to official estimates for 2005, the natural resource sector contributed around 22% to GDP. Both its above-average oil production growth rate and reserves-to-production ratio indicate that Kazakhstan is far from being a mature oil producer and still has huge potential.

Kazakhstan in the fast lane

Kazakhstan is ranked 56th in the 2006 Global Competitiveness Index, well ahead of Bulgaria, the Ukraine, Russia and Turkey. The country aims to become one of the top 50 most competitive economies on the globe within the next decade. In September 2002, Kazakhstan became the first Former Soviet Union (FSU) country to receive an investment grade rating from a major credit rating agency, with rating actions pointing toward higher creditworthiness since then. From a geopolitical standpoint, Kazakhstan enjoys good relationships with China, Russia, the USA and the European Union. Since declaring independence in December 1991, Kazakhstan has learned how to balance the interests of its Russian and Chinese neighbors and the developed world. Although democratic progress is relatively slow in Kazakhstan, the election of President Nursultan Nazarbayev should help maintain political stability until 2012.

Banks among the main beneficiaries

The government plans to pour USD 30 billion into infrastructure projects by 2015. Capital investments are driving the demand for businesses that turn to banks for financing: over the past five years, corporate lending has grown at a rate of 34%. The revenues from oil extraction have also raised disposable incomes. While Kazakhstan used to be a poor Central Asian country, it has maintained the highest GDP per capita growth rate in the region since the turn of the century. In 2006, Kazakhstan's GDP per capita was USD 5,081.

Figure 1

GDP driven by energy boom

Kazakhstan aims to double oil production by 2015, which would drive GDP growth and bring the economy closer to advanced markets.
Source: Central banks, Credit Suisse

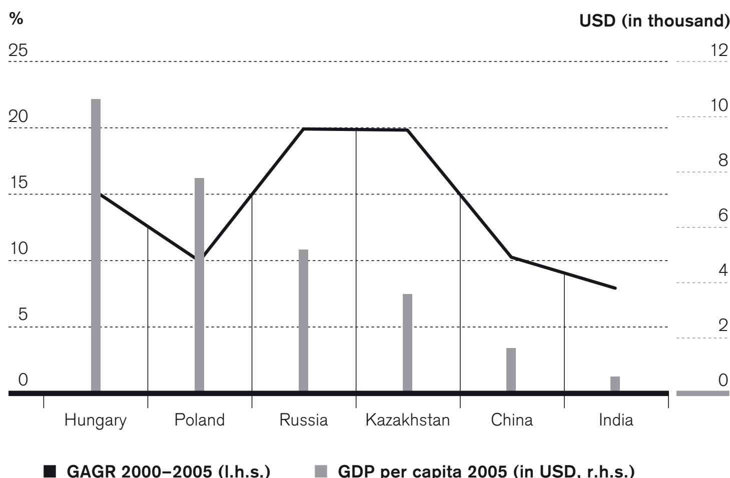
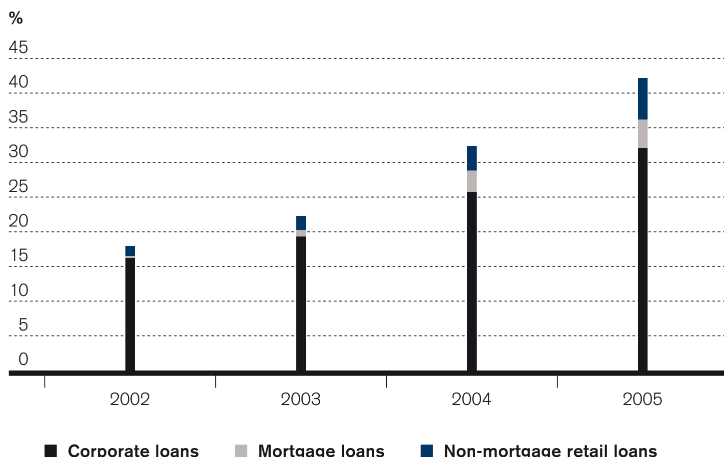


Figure 2

Loan penetration (loans-to-GDP)

Strong loan demand is a sign of a growing economy. On the banking side, both corporate banking profit and underlying retail banking are benefiting from the general rise in living standards. Source: National Bank of Kazakhstan



Real wage growth and improved consumer confidence have stimulated private consumption, which is the backbone of Kazakhstan's economy. Between 2001 and 2006, total loans grew tenfold, and the loans-to-GDP ratio rose from 18% in 2002 to 42% by the end of 2005. We expect credit market growth to remain high at a 33% compound annual growth rate (CAGR) until 2010.

Banking landscape

The 1998 financial turmoil in Russia resulted in a series of reforms. Today, Kazakhstan is recognized as the best-regulated FSU country. Kazakhstan's banking landscape is highly concentrated, with the three biggest banks accounting for more than 60% of assets. Significant foreign ownership in the banking sector is common to many emerging markets but is not the case for Kazakhstan. Only a few foreign houses are active, and we estimate the total assets controlled by these banks at less than 7%. Since the Kazakh banking sector is characterized by exceptionally low deposit penetration, Kazakh banks are heavily reliant on international debt issuance and foreign borrowings to fund loans.

We have witnessed massive loan growth and improved banking penetration in Kazakhstan **(see Figure 2)**. However, the market is far from being saturated. On the consumer side in particular, we still consider the Kazakh banking sector to be at an early stage. Given a relatively low mortgage-to-GDP ratio and the moderate level of vehicle ownership, we expect to see strong growth in mortgage lending and automobile financing in retail banking.

The Kazakh express

We expect Kazakhstan's underlying growth story to continue and consider the environment to be highly conducive to the expansion of the financial sector. For these reasons, we believe the London-listed Global Depositary Receipts (GDRs) of Halyk Bank and Kazkommertsbank are in a position to benefit from this trend. Although richly valued and restricted in terms of liquidity, we believe the superior growth outlook and the novelty of this market make these two stocks an interesting proposition for risk-tolerant investors. **—1.—** Halyk Bank, our favorite Kazakh bank, is the former National Savings Bank of Kazakhstan and was part of the Soviet-era Sberbank. It is the largest Kazakh retail bank in terms of customer deposits, the number of retail outlets and automatic teller machines (ATMs), and ranks number three in terms of assets. Halyk Bank is managed by the President's son-in-law, Mr. Kulibayev, who indirectly holds 64% of the shares. Halyk Bank is the most retail-oriented Kazakh Bank. Its loan book is made up of 18% mortgage loans and 12% other consumer loans. Net fee income contributes 36% to revenues, while net interest accounts for 57%. Halyk Bank is the most profitable Kazakh Bank, with a net interest margin of 767 basis points for FY 2005. We also note that Halyk Bank has the largest branch network providing inexpensive funding and margins above the sector average. Halyk Bank is well supported by its domestic deposit base and is therefore least dependent on external bond issuance. The free float is 29%. **—2.—** Kazkommertsbank was established in 1990 and is the largest Kazakh bank in terms of assets and loans. While its historical business focus is the corporate business, the bank is increasingly becoming a universal bank that provides corporate banking, retail banking and asset management. The company is majority-owned and controlled by the management. The company has subsidiaries in Russia and Kyrgyzstan. The lending business contributes 71.7% to total revenues. Kazkommertsbank has

its roots in large corporate lending, but management is trying to diversify the loan book: corporate loans account for 85%, mortgage loans 9% and other consumer loans 4%. In the retail segment, the bank's focus is on high net worth individuals and middle income groups.

Main investment risks

Our investment thesis is based on a high expected level of lending growth. Accordingly, we think the fair values of Halyk Bank and Kazkommertsbank will remain very sensitive to the loan book and margin development. Since the two banks have significant exposure to the real estate and natural resources sectors, a collapse in real estate prices or a sharp decline in natural resource prices would likely have a negative impact on its growth outlook, even for its diversified loan portfolios. However, a typical Kazakh oil company breaks even at an oil price of around USD 25 per barrel, and our economists do not believe that natural resource prices will fall to critical levels within our forecast period. A limited supply in the real estate market and rising living standards mitigate the risks of a severe devaluation of property.

The main risk on the funding side is that the sector loan-to-deposit ratio stands at around 130% and is by far the highest in the region. Regulators are concerned about the vulnerability of local banks to a tightening of international financing conditions and have already imposed some measures to control debt issuance through limits on open positions and making bond issuance more expensive. Both a lower risk appetite of foreign bond investors and an overly restrictive funding regulation would likely lead to a deterioration on the funding side. In the longer term, however, this situation would strengthen the financial system. Political risks are also a factor to consider as well as the country's emerging market nature with higher underlying volatility. ■

Macroeconomic background

Kazakhstan's 2006 GDP growth rose to 10.6% from 9.4% in 2005, underpinned by strong growth in private consumption and construction expenditures. Credit Suisse economists expect rapid economic growth to continue on the back of ambitious oil extraction plans that are likely to foster fixed investments and exports. Rising living standards and a stimulating fiscal policy should support private consumption. Managing macroeconomic risks will be a challenge, but we expect monetary authorities to keep inflation in check by a combination of tighter monetary policy and a stronger Kazakhstan tenge.

Explicit targeting of the non-oil deficit introduced in the middle of 2006 should help the government to enhance fiscal discipline in view of the likely continuation of oil revenue windfalls in the coming years. The government is planning to reduce total spending to 24% of GDP by 2008, as well as reduce the tax burden on the economy and lower the non-oil deficit to 4.4% of GDP by 2009 from around 6% of GDP in 2005.

Table 1

Attractive banking stocks in Kazakhstan

Strong economic growth is driving demand for retail and corporate banking products. Source: Bloomberg, Credit Suisse

Stock	Rating	Bloomberg	Sec. no.	Investment rationale
GDR Kazkommertsbank	BUY	KKB LI	2774751	Strongly growing Kazakh wholesale bank; very high beta; profiting from underlying GDP growth and foreign investor interest. Risk: Depends on economic development, especially the energy sector; political risk.
GDR Halyk Bank	BUY	HSBK LI	2833528	Strongly growing Kazakh retail bank; more defensive; underlying growth driven by low deposit penetration as well as loan penetration and its potential. Risk: Depends on economic development; political risk.

The above recommendations represent our mid- to longer-term investment view at the time of writing and are subject to change depending on market conditions. Please contact your relationship manager for regular updates on specific companies.

Photo: B.S.P.I./Corbis

Metro Hat, Tokyo, Japan

One network for everything

The telecommunications sector is undergoing radical change. Full-scale digitalization of telecommunications networks and faster data rates for both fixed networks and mobile handsets are profoundly changing the environment in which telecom companies operate. The distinct markets served by IT services, telecommunications, Internet and media companies are converging into one.

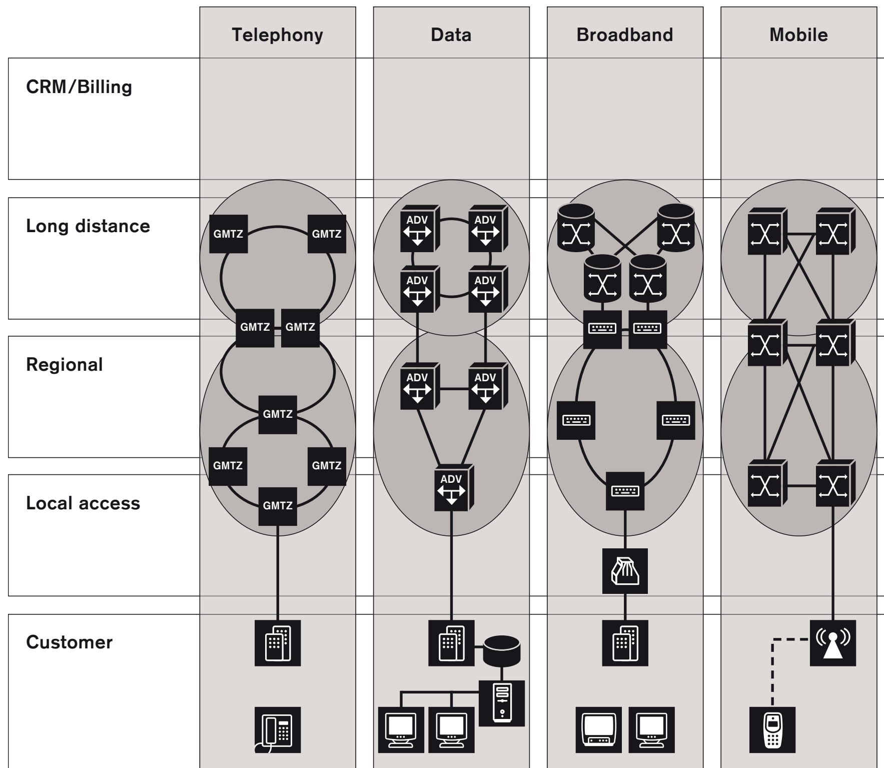
Uwe Neumann, Equity Sector Analyst

Several telecom companies have announced in recent months that they are hoping to shut down their aging analog voice networks as early as 2010 and migrate to completely digital Next Generation Networks (NGNs), which should cost less and be more reliable and easier to maintain. Plans to build upgraded Next Generation Mobile Networks (NGMNs) have also been unveiled. NGMNs could represent an important breakthrough in providing wireless access to the Internet, television, and music or video on demand. It appears that mobile Internet could become a mass-market issue earlier than the initially projected time frame of 2010 to 2012. At this year's 3GSM World Congress in Barcelona, telecom companies left no doubt that they are hoping to bring mobile Internet services to the mass market as early as 2009. For example, in his speech at the annual industry get-together, Vodafone's Chief Executive Officer (CEO) Arun Sarin surprisingly urged the Global System for Mobile Communications (GSM) community to step up the development of Universal Mobile Telecommunications System (UMTS) technology. There are several motives for such calls to action. For one, the telecommunications industry has spent approximately one trillion euros to build up UMTS networks, and at some point it would like to see some kind of return on its investment. Apparently, even Vodafone, the world's market leader, is getting nervous about the decline in revenue growth rates for voice services. Another reason is that now – after years of waiting – mobile broadband is finally technologically possible thanks to UMTS add-on applications such as High-Speed Downlink Packet Access (HSDPA), High-Speed Uplink Packet Access (HSUPA) and Long Term Evolution (LTE; **see Figure 1**). To date, the so-called 3G standards such as UMTS have attracted only about 100 million users, a fraction of the total mobile handset population of more than 2.5 billion. Having pinned its hopes on turning mobile TV and mobile Internet services into a mass-market success, the telecom sector is now challenged to ensure that the huge amount of data volume this will entail is available efficiently and at low cost wherever coverage is offered. Telecom companies worldwide are in the process of upgrading their networks and switching to completely Internet Protocol-based (IP-based) architecture in order to meet this challenge.

Productivity gains and cost savings potential

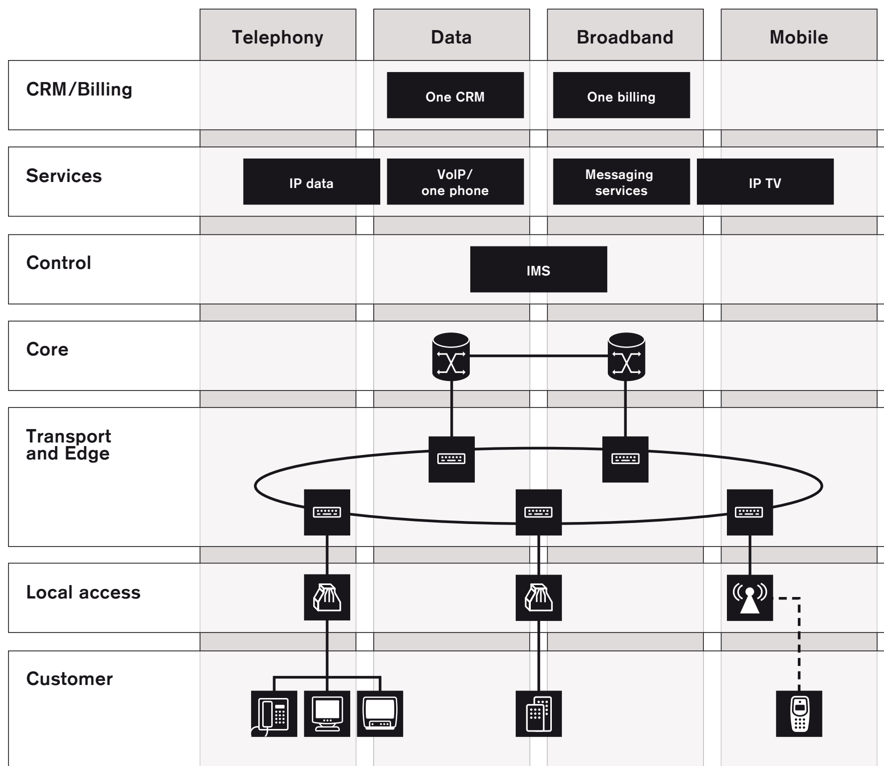
The new generation network brings advantages for more than just end users. It will allow telecommunications companies to achieve long-term cost savings and give them greater flexibility in developing and marketing future products and services. Leaner network architecture will not only lower hardware costs, but a uniform IT platform also means only one management system will be required. Up to now companies have worked with various stand-alone solutions, pushing up overall operation, maintenance and training costs. Another advantage the next generation of networks offers telecom-

Today: Parallel platforms for different services



Source: Swisscom

Tomorrow: All-IP – one platform for major services



New network architecture simplifies convergence of different services

Acronyms such as "NGN" and "NGMN" refer to a network built on advanced technology that enables the convergence of multimedia communications and interactivity in wireline and wireless networks. Next Generation (Mobile) Network is a widely used term in the international fixed network community.
The core element of a Next Generation Network is its underlying architectural framework, the IP Multimedia Subsystem (IMS). This open and standards-based platform is key to fixed/mobile convergence, since it serves as a bridge between voice and data networks.

munications companies is that they will be able to develop new services using advanced, standardized software tools, making productivity gains possible. With the aid of tried-and-tested software development methods and instruments, telecommunications companies can now create new services and products on their own in a very short period of time and add them to or remove them from their networks relatively easily. This was not the case in the past. IP Multimedia Subsystem (IMS) architecture makes it much faster and less complicated to develop and implement new services such as push to talk, video conferencing, instant messaging, mobile music downloads and, most importantly, specific enterprise applications. IMS can also be a risk, however, as discussed in the following paragraph.

Desktop PC becomes a webtop PC

The corporate clients market served by telecommunications companies could undergo fundamental change as a result of the new network architecture. In the last two decades, computer processes have mainly involved desktop personal computers (PCs), which were usually part of a company's local information technology (IT) network, a so-called Local Area Network (LAN). The main advantage of the client/server structure of a LAN was processing speed. The related maintenance costs and relatively high hardware costs were disadvantages. The new network architecture on which the telecommunications companies are working offers new possibilities that could eliminate the disadvantages. The so-called Wide Area Network (WAN) of telecommunications companies would offer faster application and processing speeds than corporate LANs. Therefore, these new WANs might be able to assume the function of a local network in the future. In other words, it would no longer be necessary for a company to own and maintain a farm of servers on-site in a LAN; the servers could be maintained at a central location somewhere else. The desktop computers would access the network via the WAN of a telecommunications company. The desktop PC would thus become a webtop PC. However, the LAN market is a typical IT services business, which means telecommunications companies can penetrate the IT services market given the new functionality offered by their NGNs. Admittedly, the reverse is also true. Large IT companies such as IBM or Capgemini will seize the new opportunities to offer customized business communications and process optimization services. Corporate clients will be eager to make use of the new possibilities because the new network structures can produce considerable savings over the long run. Against this background, mergers between telecom and IT companies would probably also make sense.

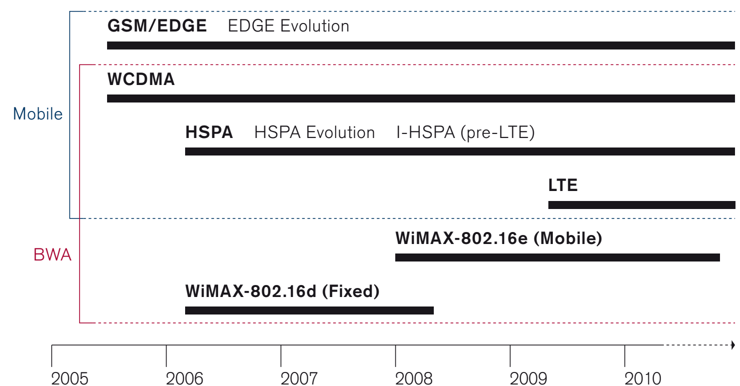
"Internet toll charge" for better bandwidth quality

Besides the challenges in the corporate accounts business, the competition for individual customers is fierce. Google recently announced that the data traffic generated by YouTube alone in 2006 was equal to the entire web-based data traffic volume in the US in 2000. Demand for personalized services (MySpace) and/or video downloads (YouTube) is clearly growing. However, while Internet companies such as Yahoo and Google become ever more popular and can acquire potential future customers by offering such services, telecommunications companies are not benefiting financially from the growing data traffic flowing through their landline networks. That could change with the increased usage of NGNs and NGMNs, however. One reason is that telecommunications companies could

Figure 1

Evolution of radio access standards

Telecom service companies in Europe have reinforced their willingness to bring Internet services to the mass market by as early as 2009. Nokia presented its technology roadmap at the 3GSM Conference in Barcelona Source: Nokia, Credit Suisse



better monitor the usage of their networks thanks to the new architecture. This could put them in a position to charge a kind of "Internet toll" for better bandwidth quality. They are also likely to have learned their lesson from past developments with their wireline networks and be ready and prepared to better defend their territory in the mobile Internet business. Moreover it will be easier for them to develop new services.

Winners and losers of the network revolution

This year's 3GSM World Congress in Barcelona left the impression that telecom companies are more pragmatic and that they are committed to increasing traffic through their networks but also to benefiting financially from those traffic flows. They might succeed in doing so if they correctly develop and market their new "one-size-fits-all network." We consider BT Group, KPN, Verizon and NTT the pioneers in this field. Deutsche Telekom and France Télécom have some catch-up potential because they have relatively strong IT operations. Losers are likely to be the alternative carriers or telecom companies that are only active in their domestic market. In this subsegment, further market consolidation and merger and acquisition (M&A) activity are likely. Telecom equipment suppliers should continue to benefit, too, as more money will have to be spent on building and upgrading landline and wireless networks. With its strong market position in the Internet protocol television (IPTV) business, Alcatel-Lucent is the company with the best market growth prospects among the European manufacturers. Moreover, the surging growth of data traffic volumes is accompanied by sustained demand for optical network elements and edge routers, a business where Alcatel-Lucent is also well positioned, along with Ciena, Cisco and the smaller European company Adva Optical. In the IT services sector, companies such as Amdocs stand to benefit, since they already have experience in integrating IT services into telecom networks. ■

Table 1

Companies benefiting from the network revolution

Telecom companies are more pragmatic and committed to increasing traffic through their networks. Telecom equipment suppliers and IT service companies should benefit from additional demand and funds spent on networks. Source: Credit Suisse

Stock	Bloomberg	Sec. no.	Rating	Investment thesis
BT Group	BT/A LN	1292393	HOLD	BT Group operates one of the most advanced next generation networks among incumbents.
Koninklijke KPN	KPN NA	1076509	HOLD	KPN's all IP strategy should lead to a successful turnaround of its domestic wireline business.
Verizon Comm	VZ US	1095642	HOLD	Verizon's FiOS (fiber optic services) project is a promising value driver for the company.
Nippon Tel&Tel	9432 JP	764057	HOLD	Japan's leading telecom operator with monopoly power in fiber optic network services.
Deutsche Telekom	DTE GR	1026592	HOLD	Restructuring and new VDSL initiative in its domestic broadband business should lead to a turnaround.
France Télécom	FTE FP	720128	HOLD	FT provides one of the highest FCF and dividend yields among the European telecom stocks.
Alcatel-Lucent	CGE FP	485864	BUY	Alcatel should benefit from its leading position in the IPTV-equipment market and from merger synergies.
Ciena	CIEN US	2721615	BUY	New products and management leverage Ciena's position in the recovering optics market.
Cisco	CSCO US	918546	BUY	Leadership within key network infrastructure segments qualifies Cisco as a main beneficiary of the content digitization trend.
Amdocs	DOX US	922906	BUY	Rolls-Royce in the growing telecom/Internet billing and mediation systems market.
IBM	IBM US	941800	HOLD	IBM continues to benefit from its solid product/service lineup as well as from continued restructuring.
Capgemini	CAP FP	488070	BUY	Successful restructuring and new business opportunities through all-IP networks.
Adva Optical	ADV GR	498244	BUY	Niche player with strong growth in the recovering optics market.
Google	GOOG US	1916494	BUY	Leader in the Internet's evolution to a more dynamic communications and media tool.
Yahoo	YHOO US	453745	BUY	Yahoo's next generation search technology (Panama) should fuel continued growth.

The above recommendations represent our mid- to longer-term investment view at the time of writing and are subject to change depending on market conditions. Please contact your relationship manager for regular updates on specific companies.

Nanotech for energizing solar cells

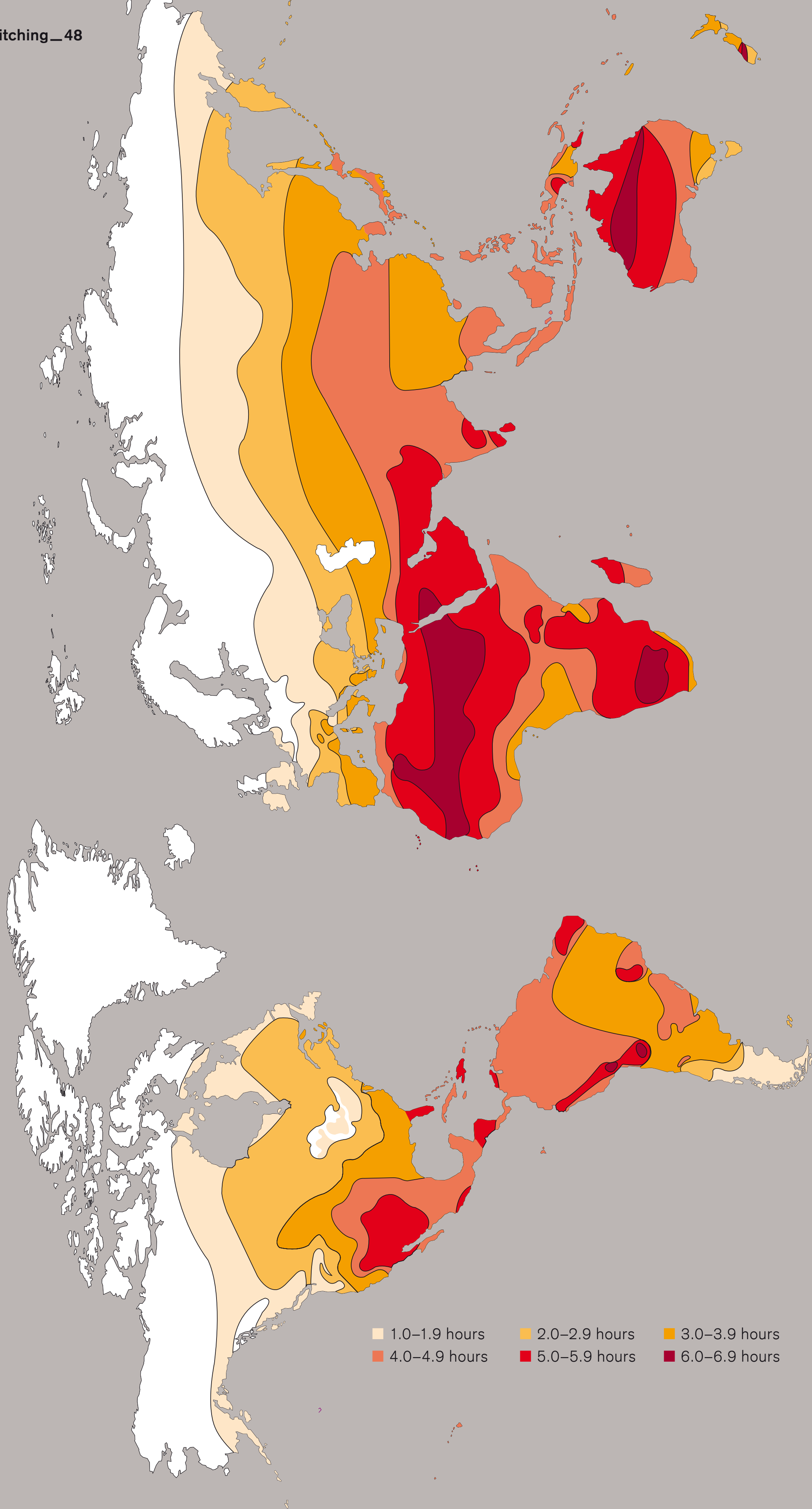
Imagine you were able to power your laptop just by unfolding a thin photovoltaic foil the size of a sheet of paper. Or think of a mobile phone with a photovoltaic coating delivering enough energy for operation. Or figure the convenience of houses with windows that generate electricity. Development in solar cell nanotechnology promises such scenarios will become reality, potentially within the next decade.

Dr. Dominik C. Mueller, Equity Sector Analyst, **Dr. Thomas C. Kaufmann,** Equity Sector Analyst

Within only 89 minutes, the earth's surface receives enough sunlight to theoretically satisfy the world's energy demand for an entire year. It is inexhaustible and non-polluting energy, free for anyone who can harness it. According to the International Energy Agency (IEA), the world's electricity consumption will have doubled by the year 2030. Experts estimate that by 2040, up to 16% of worldwide electricity demand could be satisfied by solar power. In particular, direct sunlight conversion into electricity by means of photovoltaic (PV) elements enjoys exciting future potential in two distinct areas: _**1.**_The replacement of nuclear and fossil fuel electricity. _**2.**_Energy supply for portable devices. While the cost per watt is the main driver in the retail electricity market, achievable efficiency, manageability and cell shape factor are crucial factors for portable device PV cells.

PV catching up on competitiveness

Since the 1970s, when the solar energy market was virtually nonexistent, prices in the PV energy industry have decreased substantially, which has led to the production of millions of watts per year. Global shipments of PV cells have been growing at an annual rate of more than 35%, partially driven by governmental energy policies **(Figure 1)**. As of today, solar electricity prices are about 20–60 US-cents/kWh, or within a factor of 2–10 of those from conventional electricity sources. As such, PV energy today can only be competitive in subsidized markets like Germany and Japan, or in regions with high insolation (a measure of solar radiation power) and elevated retail electricity prices. But the price gap continues to shrink, also owing to rising fossil fuel prices. The US government anticipates solar energy will become commercially competitive by 2015, providing one to two million American homes with solar electricity. Yet in other areas, PV technology may catch up to conventional electricity by as early as 2011, opening up enormous markets for the industry **(Figure 2)**. Three critical factors in solar cell technology that primarily control the price per watt of PV cells in the electricity market need to be addressed:_**1.**_Efficiency, i.e. the energy conversion factor determining the electricity output per cell area._**2.**_Manufacturing costs per cell area, mainly driven by material consumption and raw material costs.



Source: http://www.sunwize.com/info_center/insolmap.htm

Amount of solar energy in hours

Amount of solar energy in hours, received each day on an optimally tilted surface during the worst month of the year based on accumulated worldwide solar insolation data.

_**3.**_Cell lifetime: Modern PV elements based on silicon technology have lifetimes of over 40 years and pay off their production energy in 1–5 years.

Japan and Germany leaders, USA yet to arise

The leading producers of PV cells are Japan and Europe (mainly Germany) with a 45% and 28% share of total global 2005 shipments, respectively, clearly dominating the market. The USA is still lagging behind, with a mere 8.5% market share, on a level with China (8.3%). However, the proposed FY 2008 US budget calls for USD 137 million in funding for the Solar America Initiative (SAI), a major new R&D effort to achieve cost-competitive solar energy technologies across all market sectors by 2015. US solar cell companies are expanding, and the Silicon Valley start-up Nanosolar last year announced the construction of a manufacturing facility that will produce an output of 430 megawatts (MW) per year, almost triple the existing solar production capacity of the USA today. Conservative estimates given by the European Photovoltaic Industry Association (EPIA) see worldwide PV systems capacity exceeding 400 GWp, or 3% of the global electricity demand in year 2025, implying average annual CO_2 savings of 353 million tons per year, equivalent to 150 coal-fired power plants. Worldwide revenues of the PV industry are expected to soar from USD 11 billion in 2005 to USD 220 billion in 2025 **(Figure 3)**. And these figures do not even take into account ground-breaking developments in nanotechnology-based PV research.

Three generations of solar cells

First-generation PVs are silicon wafer-based solar cells, accounting for more than 86% of the market. The technology has come a long way since the early days of silicon cells in the late 1950s, and conversion efficiencies have been boosted from 6% for the first devices to currently over 20%. For satellite applications, some refined cells have been designed that even reach 40% efficiency. First-generation solar cells account for the principal PV sales portion of the main suppliers Sharp, Kyocera and Q-Cells. Also, mid caps like German Solarworld or the US-based SunPower source their main revenues from this technology. However, high material demand is a grave downside of first-generation devices. Shortages of silicon supply have led to an increase in pricing, and manufacturers have to compete with the computer industry for supplies of high-quality silicon. This in turn has spurred the development of a new technology generation with lower material usage per watt.

The second generation of PV technology came about a decade ago and is based on the use of thin-film deposits of various semiconductors. There are different materials under investigation or in mass production, such as amorphous silicon, cadmium telluride and copper indium sulfide. These materials generally exhibit increased light absorption rates that allow for film thicknesses of a few microns (compared to 200–300 microns in first-generation PV elements). Besides the larger players, start-up companies like Daystar Technologies, Shell Solar and Nanosolar are prominent promoters of the thin-film technology with auspicious plans for soaring production capacities in the medium term. Efficiencies are typically lower compared to first-generation PVs, ranging from 5% to 13%, but owing to reduced material usage, the price per watt achievable with second-generation solar cells is better in the end. Compound consumption for both PV generations together has been reduced from 14 grams/watt in 2003 to currently 9 grams/watt, and the

Figure 1

World PV cell/module production

Sustained growth of the PV industry in the last decade. Japan is the clear leader, accounting for nearly half of the world's production. Source: European Commission (PV Status Report 2006)

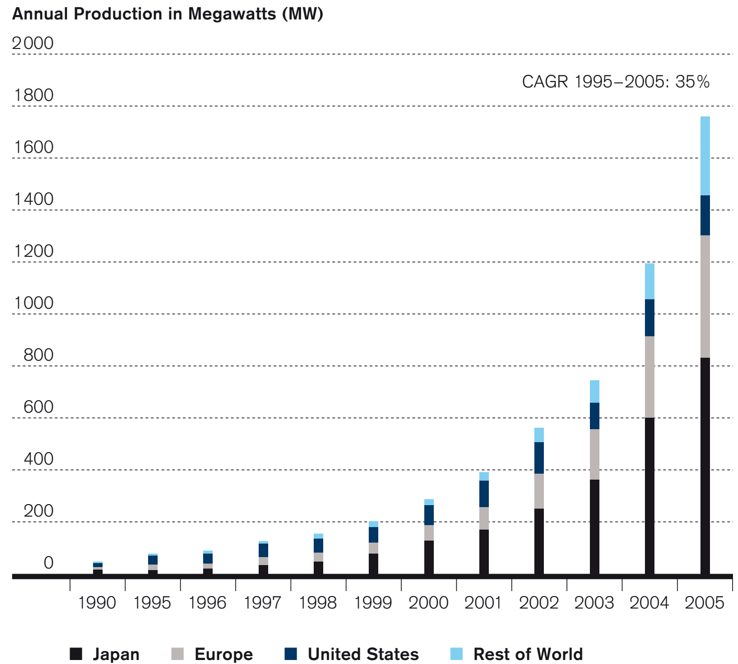
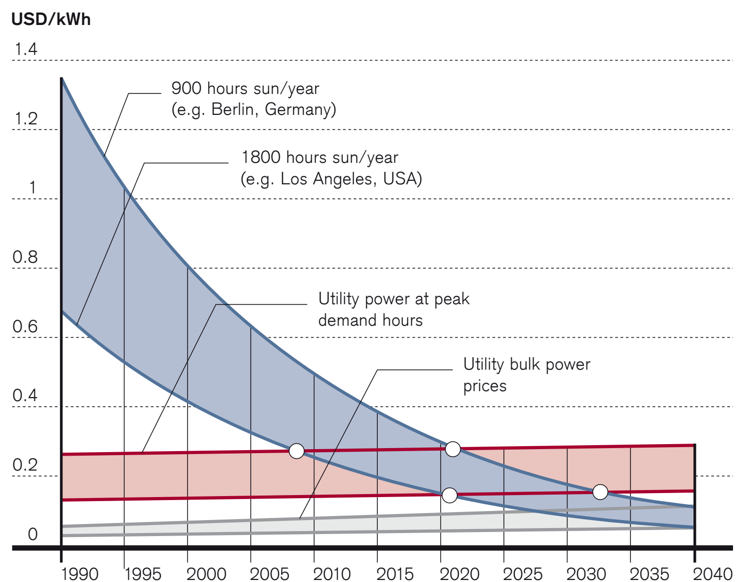


Figure 2

Competitiveness of PVs

Falling solar electricity prices are expected to undercut conventional source prices within the next decade. Source: EPIA (RWE Schott Solar GmbH)



industry has managed to cut unit costs by over 5% yearly. Thin-film PVs have the potential to drop PV electricity costs to 6 US-cents/kWh. But even if thin-film PVs meet their long-term potential, a quantum leap in cost reduction is indispensable in order to provide the scale of applications the world will need. This is where nanotechnology comes into the picture.

Third generation: New nanomaterials

Nanotechnology, or the ability to architect and assemble things at the atomic level, is on its way to optimizing solar cells both in terms of increased conversion efficiency and considerably cheaper raw material. Third-generation PVs include organic solar cells, photoelectrochemical cells and nanocrystal solar cells that may ultimately beat down solar electricity prices to below 5 US-cents/kWh. The Nobel prize-winning invention of conductive polymers has paved the way to organic solar cells that are made of inexpensive flexible plastic which can be wrapped around structures or even applied like paint. Up to now, its degradation upon exposure to ultraviolet (UV) light and relatively low energy efficiency have been a drawback. However, researchers from New Mexico State University and Wake Forest University recently achieved a solar energy efficiency level of 5.2%. They believe plastic solar cells with efficiencies beyond 10% will be a reality for consumers in four to five years. Early promoters of the technology are BP Solar and Konarka, a private, US-based start-up company with R&D subsidiaries in Austria and Switzerland, whose light-activated Power Plastic™ foil was selected as one of the best products in 2006 by Builder News magazine. Moreover, researchers from the University of Toronto recently produced the first PV cell able to harness the infrared portion of the sunlight spectrum. It is believed that with further advances of this nanoparticle-enhanced polymer technology, plastic PV cells could achieve efficiencies up to 30%.

Another promising emerging technology, invented by researchers at the Swiss Federal Institute of Technology in Lausanne (EPFL), is the photoelectrochemical or dye-sensitized solar cell (DSC), often referred to as "artificial photosynthesis." Here, the incident light transforms the dye molecules by exciting their electrons, which are then absorbed by a titanium dioxide (TiO_2) layer to become an electric current, somewhat similar to the photosynthesis process in plants (**Figure 4**). The concept has been out there for quite some time; however, it did not work well until researchers used TiO_2 crystals 30 nanometers in diameter, which greatly increased the sponge-like contact area with the dye, enhancing the efficiency of electron absorption. DSC technology has high market potential owing to the cheap raw material. The Australian Dyesol, a start-up with close ties to EPFL, is a leading developer and manufacturer of dye-sensitized PV cells.

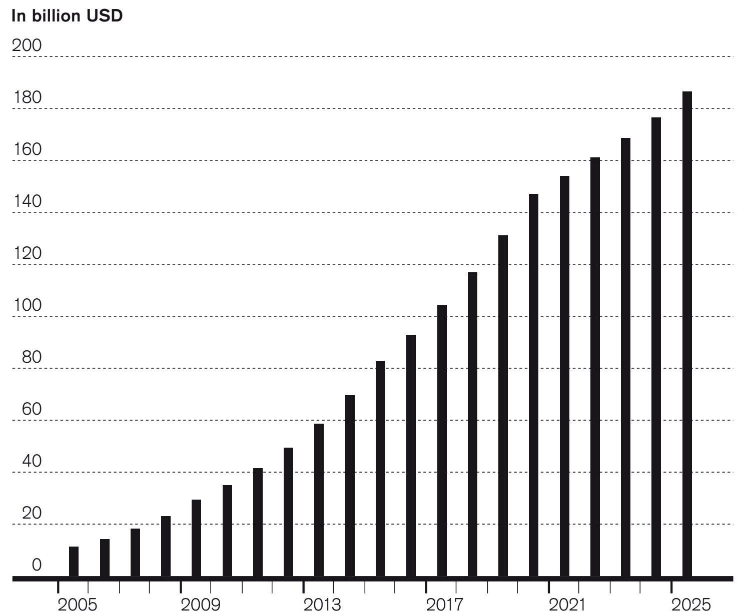
Light-absorbing nanocrystals and quantum dots

Another strategy for capturing sunlight energy is to use nanocrystal solar cells. Silicon nanoparticles of diameters ranging from 1 to 4 nanometers sprayed onto a silicon substrate absorb UV light and convert it into electrical current. With appropriate connections, this ultrathin film of silicon then acts as a PV cell. The concept is being developed by the US start-up Octillion, while a number of research laboratories are working on similar inorganic cells, including Lawrence Berkeley National Laboratory. With this ultrathin, inexpensive technology, glass windows could generate electricity from sunlight, without losing significant transparency, and rooftops or facades could be laminated, with virtually no impact on appearance.

Figure 3

PV industry sales estimates

The projected annual growth rates used in the forecast continuously ease off, from 35% in 2005 to 11% in 2025. System costs per watt are assumed to fall from USD 8 to USD 2.50 in 2025. Source: Credit Suisse and EPIA/Greenpeace



Finally, cells incorporating quantum dots (QDs) that are connected by carbon nanotubes or even proteins will provide extremely high energy conversion efficiencies of potentially up to 50% at a relatively low cost. By using dots of different sizes, a PV cell can be devised to capture and convert the entire solar spectrum. Though still in an early stage of research, the technology has breakthrough potential and is, among others, being actively explored by the US National Renewable Energy Laboratory. Some nanotechnology concepts are likely to hit the PV mass market within the next five years; others will take more than a decade. Meanwhile, the thin film and conventional wafer-based panels should see continuing optimization.

Towards flexible energy supply

In the long term, cheap and efficient solar cells will likely create an embedded source of low-cost renewable power wherever there is light. With solar cells on the rise, a considerable portion of worldwide electric power generation could be decentralized. According to the IEA, developing countries are expected to account for two-thirds of the increase in world primary energy demand between 2002 and 2030. In terms of global CO_2 emissions, these countries will be responsible for 49% of total emissions in 2030. While mature industrialized economies can afford a sustainable energy supply, the renewable energy share in developing countries is forecast to decrease in the future. Price reductions for solar energy could break this trend and provide emerging economies with sustainable energy. Off-grid applications could improve quality of life for about 1.6 billion people around the world living without basic energy services (most of whom are in South Asia and sub-Saharan Africa). Solar-powered tools could be a backbone for the infrastructure in many emerging markets. Just a few years from now, a myriad of mobile electronic devices and millions of homes and offices could source their power directly and independently from the sun.

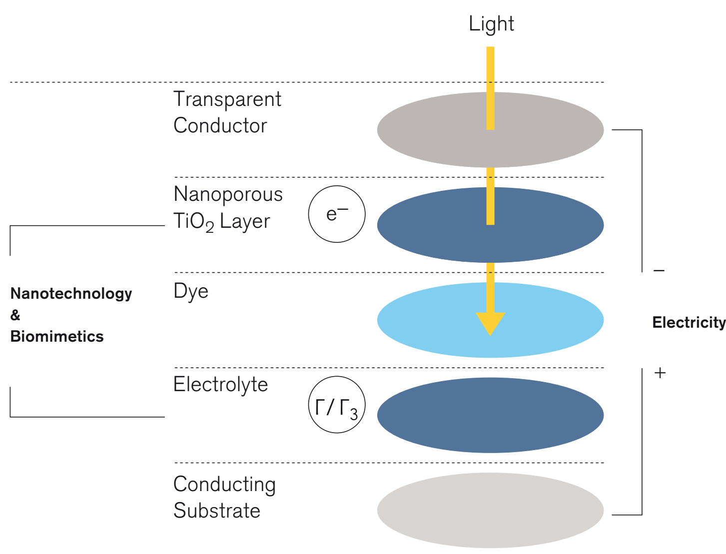
Note on the investor's perspective

In the short term, first-generation PVs should clearly continue to dominate the market. Consequently, large players in this market segment like Kyocera or the German Q-Cells are most likely to benefit from rising PV sales worldwide. However, EPIA estimates that first-generation market share will drop from its current 92% to below 80% by 2010, while thin-film technology in the same period should see a corresponding increase to 18%. A number of larger providers like Sharp also intend to strengthen thin-film-type solar cells as a second pillar of their product line. Investors wishing to gain exposure to second-generation technology at this stage are likely to see less risk investing in such stocks than in the above-mentioned start-ups. Nanotechnology-based third-generation cells are forecast to gain significant market share of around 10% by 2020, even growing to 30% by 2030. As of today, however, the companies developing third-generation solar technology are mostly early-stage enterprises exposed to both significant business and market risks. ■

Figure 4

Dye-sensitized solar cell

This nanotechnology solar cell type converts sunlight into electric current using organic molecules. Source: Dyesol Ltd., Credit Suisse



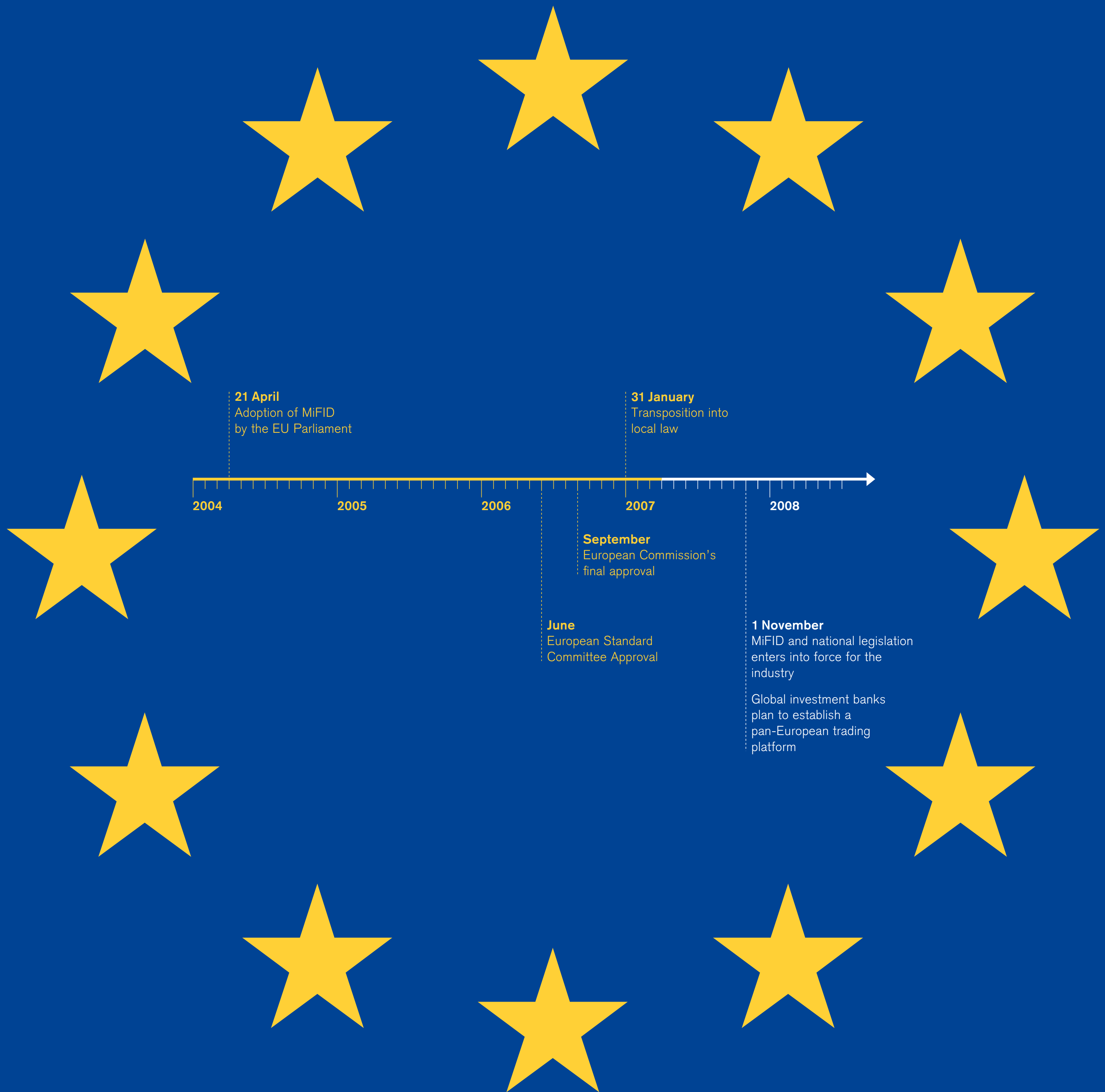


Figure 1

MiFID's path to implementation

Following the adoption of MiFID by the European Parliament back in 2004, member countries were given until 31 January 2007 to adjust their legislation to the new directive. Stock exchanges and retail stockbrokers are likely to have more difficulties, whereas large investment banks should be more on the winning side. Consultants and software developers are also expected to benefit from the introduction of the new framework.

A regulatory gift for banks

The Markets in Financial Instruments Directive (MiFID) is a regulatory initiative in the financial services industries intended to open up competition and create a single pan-European financial services market. In our view, MiFID is likely to favor large, technology-led banks. We expect investment banks to be among the winners thanks to higher transaction volumes, while stock exchanges may face increasing pricing pressure and lower volumes.

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MiFID is designed to create a unified European market, introducing regulations to govern the conduct of trading and investment activities across all European member states. Further, it encourages greater competition between potential trade execution venues and market data suppliers, as it establishes standards for regulated markets and multilateral trading facilities (MTFs). Last but not least, it aims to increase transparency and investor protection significantly. While MiFID has a rather complicated legal framework, we believe that the following elements are most important in understanding the impact of the regulations: _**1.**_ Conduct of business obligations for investment banks: Under MiFID, investment banks are asked to conduct their business in a diligent way, such as collecting supplementary information about clients and their suitability for particular investment products. The regulation also introduces strict guidelines with regard to non-trading-related services and cost transparency. _**2.**_ Best execution: MiFID aims to expand the concept of best execution to include traded financial instruments other than equities. A number of questions remain open with regard to instruments other than equities, as their markets are not comparable to efficient equity markets. While the focus for retail investors is on the total consideration of transactions, best execution for institutional investors also considers other factors such as price traded, speed of execution, liquidity/market impact and completion of settlement. _**3.**_ Systematic internalization: Systematic internalizers are institutions that systematically execute client trades internally rather than externally, such as banks which have both wealth management and investment banking/brokerage facilities. Some examples of systematic internalizers include Deutsche Bank and to a lesser extent some UK and French names. Another typical example would be UBS, with its integrated bank approach and sizeable wealth management in addition to its investment banking facilities. These financial houses will be required to provide pre-trade transparency,

i.e. quoted prices. _ **4.** _ Post-trade disclosures: While the reporting of off-market transactions has been mandatory in some markets, this requirement has now been expanded to all investment firms covered by MiFID. _ **5.** _ Elimination of concentration rules: The previous investment services directive allowed EU members to create concentration rules requiring equity orders to be handled through the primary exchange. Under MiFID, these rules will no longer be allowed.

Legal framework with financial size

We believe MiFID will have a substantial impact on the European financial industry, as it offers strategic opportunities while, at the same time, bringing major challenges for stock exchanges. MiFID aims to shift value from the financial industry to customers by increasing transparency and competition. Markets may become more liquid and more sophisticated and hopefully see greater participation. This in turn could increase the range of available risk-return trade-offs and thereby reduce diversification costs and provide better hedging possibilities. According to a report by the economic consultancy Europe Economics, if the cost of capital is lower, then investment may increase and GDP could rise across the EU. The report's base scenario assumes three to five basis points less on the cost of equity totaling roughly GBP 3.3 billion. The UK Financial Services Authority (FSA) estimates that the benefits of MiFID in the UK are roughly GBP 200 million per annum. The one-off cost of implementation would range between GBP 870 million and GBP 1 billion, with additional ongoing costs of GBP 100 million per annum.

MiFID has the potential to challenge the financial industry landscape, with material implications for stock exchanges and investment banks **(see Figure 2)**. The most innovative banks in the early stages are likely to be some of the most sophisticated users of technology. In our view, MiFID is a typical example of how a new regulatory initiative favors large banks with modern efficient information technology, as IT changes are less costly for them to realize than for smaller financial houses. MiFID is not likely to be a second Y2K in terms of investment technology spending, since investment technology seems to be only an underlying decision factor this time. Nevertheless, we believe that the introduction of MiFID will benefit selected IT and IT service companies, such as Capgemini. However, banks will need to tap significant resources in their legal and compliance departments **(see Table 1)**, and this is more likely to be one of the main cost drivers for banks.

Systematic internalizers and MTFs

In our view, the main implications of MiFID relate to the concept of multilateral trading facilities (MTFs) and are likely to affect the following market participants most: _ **1.** _ Large investment banks are increasingly acting as systematic internalizers. We believe they will set up MTFs, if they haven't done so already. Investment banks with substantial volume flow in equities are likely to set up a joint trading platform with the aim of attracting higher volumes as well as reducing their in-house paid spreads. Systematic internalizers are required to publish the quotes (pre-trade transparency) free of charge, but may charge fees for accessing this information (post-trade transparency). As MTFs are expected to become a meaningful market force, their data might be of additional economic value and tradeable. _ **2.** _ A group of seven global investment banks including Citigroup, Credit Suisse, Deutsche Bank, Goldman Sachs, Merrill Lynch, Morgan Stanley and UBS have agreed to establish a

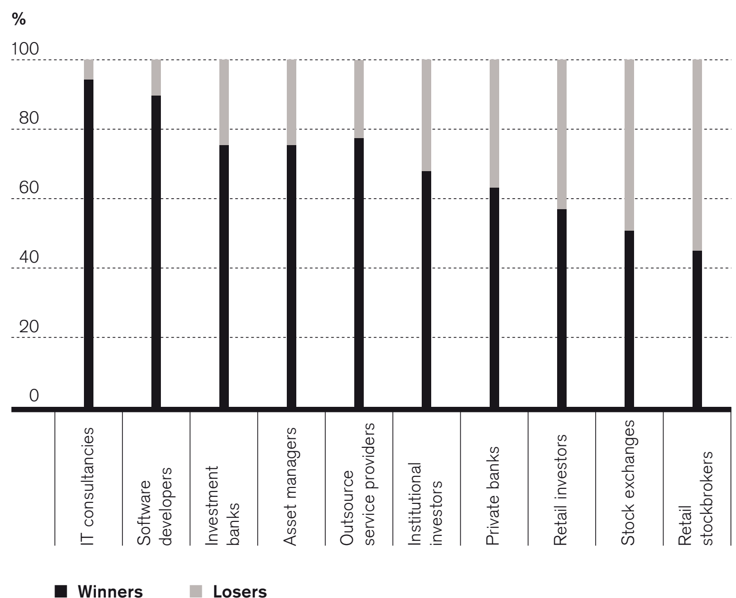
Key elements of MiFID

The Markets in Financial Instruments Directive (MiFID) is a European law which aims to unify the provision of financial services throughout the European Community and to address new market developments that have taken place since the original implementation of the Investment Services Directive (ISD) in 1993. MiFID is a component of the European Commission's Financial Services Action Plan and is scheduled for implementation in November 2007. The directive provides for a comprehensive regulatory framework governing the execution of transactions by exchanges and investment firms. It aims to enhance investor protection considerably and provide further market transparency.

Figure 2

Winners and losers after the implementation

Stock exchanges and retail stockbrokers are likely to have more difficulties, whereas large investment banks should be more on the winning side. Also, consultants and software developers are expected to benefit from the introduction of the new framework. Source: KPMG International/Economist Intelligence Unit survey 2006, Credit Suisse



pan-European equities trading platform that will compete with the region's domestic stock exchanges following the introduction of MiFID. This trading platform is to be set up as a joint-venture company with independent management. It is expected to be operative as of the beginning of 2008. Equities trading should thus be more cost-effective, obtaining significant liquidity with greater efficiency for all participants in the equity markets.—**3.**— Smaller brokers: Since the setup of a trading platform is extremely expensive and complicated, we believe smaller brokers are likely to struggle in terms of technology, organizational and process costs to comply with the MiFID rules, and providing best execution on a pan-European basis. We expect them to outsource volume to so-called MiFID-compliant MTFs, thus resulting in further concentration.—**4.**— Smaller portfolio managers: Additional rule-based trading could pose an efficient way for smaller portfolio managers to achieve best execution for their client assets and drive volume as a result.—**5.**— Stock exchanges might suffer from the additional competition, resulting in clearly lower volumes and lower spreads. We expect the consolidation discussion to intensify over time, with a greater focus on specialization going forward. MiFID will ultimately speed up the unbundling of stock exchange roles in the marketplace and increase the likelihood of future consolidation.

Conclusion

In conclusion, we expect MiFID to bring tighter spreads and overall lower transaction costs for the European equity markets, but also more liquidity and efficiency due to higher transaction volumes, mainly for the banking system. On the other hand, stock exchanges may end up capturing a smaller share of overall market volume and thus benefit less from volume growth than before. Although the initial wording of the MiFID directive addresses securities in general, MiFID will be mostly relevant for equities at the outset. The application of the MiFID directive to bonds is under discussion. But since bonds are mostly traded on OTC markets, and given the lack of unified marketplaces, we believe it will be very difficult, if not impossible, to apply the MiFID directive to that asset class, at least in the beginning. While structured products are barely touched upon by MiFID, the industry is already making preparations. For example, German banks are putting a pre-emptive German derivative codex into play.

In our view, the implications of the implementation of MiFID in November 2007 are clear: systematic internalizers such as the big US and European investment banks should benefit from higher earnings but also from higher deal volume. Stock exchanges could suffer due to higher competition and end up specializing or consolidating.

We expect banks such as UBS, Deutsche Bank in Europe and Goldman Sachs in the USA to benefit most from the introduction of MiFID, since they are likely to capture a larger portion of the trading flow and thus the commission volume, allowing them to structure their products better. The impact cannot be fully estimated, as it completely depends on the financial market situation. ■

Table 1

MiFID is more than an exercise

Table 1 ranks the relative importance of different issues with respect to the introduction of MiFID. It shows that compliance, IT system and legal issues are expected to be the most important, adding to the high burden of legal and compliance costs banks have to bear.

Source: KPMG International/Economist Intelligence Unit survey, 2006

	Initial ranking	Ranking during implementation
Compliance	1	1
IT systems	2	6
Legal	3	3
Internal audit	4	2
Risk management	5	4
Trading execution	6	7
Client reporting	7	9
Client management	8	10
Legal entity structure	9	8
Marketing	10	5

Table 2

Investment banks benefit from MiFID

We believe that large investment banks will benefit from the introduction of MiFID, as they will set up MTFs and a joint platform to capture the larger flows. Source: Credit Suisse

Bank	Rating	Investment thesis
UBS (UBSN VX)	BUY	Unique investment opportunity in a bank with a global franchise and global footholds in wealth management and increasingly in investment banking.
Deutsche Bank (DBK GR)	BUY	Offers exposure to international investment banking and the opportunity to benefit from a recovering Germany.
Goldman Sachs (GS US)	BUY	Dominant franchise position amid strong, broad-based capital market climate, although ability to sustain high profitability will be increasingly challenging.

The above recommendations represent our mid- to longer-term investment view at the time of writing and are subject to change depending on market conditions. Please contact your relationship manager for regular updates on specific companies.

Additional information regarding the MiFID initiative can be found under:
http://ec.europa.eu/internal_market/securities/isd/index_en.htm
http://www.cesr-eu.org/
http://www.fsa.gov.uk/Pages/About/What/International/EU/fsap/mifid/index.shtml
http://www.fsa.gov.uk/pubs/international/mifid_impact.pdf

Thinking outside the box

HOLT software is (almost) all that is needed to value nearly any company: a sound and reliable valuation model and a global database of comparable data. With this tool, asset managers can finally focus their attention on the important things. **Interview:** Zoe Arnold, freelance writer

Zoe Arnold: Credit Suisse has offered institutional investors HOLT Value Search for five years now and it also uses the software in-house. What exactly does this program do?

Robin Seydoux: HOLT Value Search is a software program with a financial database (balance sheet and P&L numbers, cash flow data, etc.) on more than 18,000 companies worldwide going back 20 to 25 years. And, more importantly, HOLT is an excellent tool for measuring market expectations and projecting future price movements.

Tell us how these projections are made.

Robin Seydoux: Based on prior-year figures and earnings expectations, the valuation software calculates future cash flow returns on investment (CFROI) and the estimated growth of invested capital. These two key figures are then compared with market expectations. If the figures produced by the model are less than what market expectations are implying, then investor expectations are too high and the value of the stock in question is likely to undergo a correction at some point in the future. If the figures produced by the model are higher than what the market is expecting, it is an indication that this company has upside potential.

The data used by HOLT are bought from international data services companies, which means other financial services companies are also using this data. Aren't all the projections made based on this data somewhat similar then?

Robin Seydoux: No, not necessarily. It is true that data is bought from external sources: estimates of earnings per share for the next two years, for example, are obtained from the well-known data services company IBES (Institutional Brokers' Estimate System), but the CFROI produced by HOLT is nevertheless unique. This is because the valuation software automatically makes certain adjustments to these figures, which is one of the strong points of HOLT, as these adjustments make the cash flows calculated by HOLT truly comparable across entire sectors and across international borders. And that is a tremendous advantage.

Exactly what adjustments are made?

Robin Seydoux: One important adjustment is that all the data stored in the system – sales, operating profit, etc. – is automatically adjusted for inflation. Other adjustments are made to neutralize the effect of different accounting standards, for example, on how research and development costs are reported. A reliable comparison between a company in Brazil, for instance, and a company in Switzerland is not possible until such adjustments have been made.

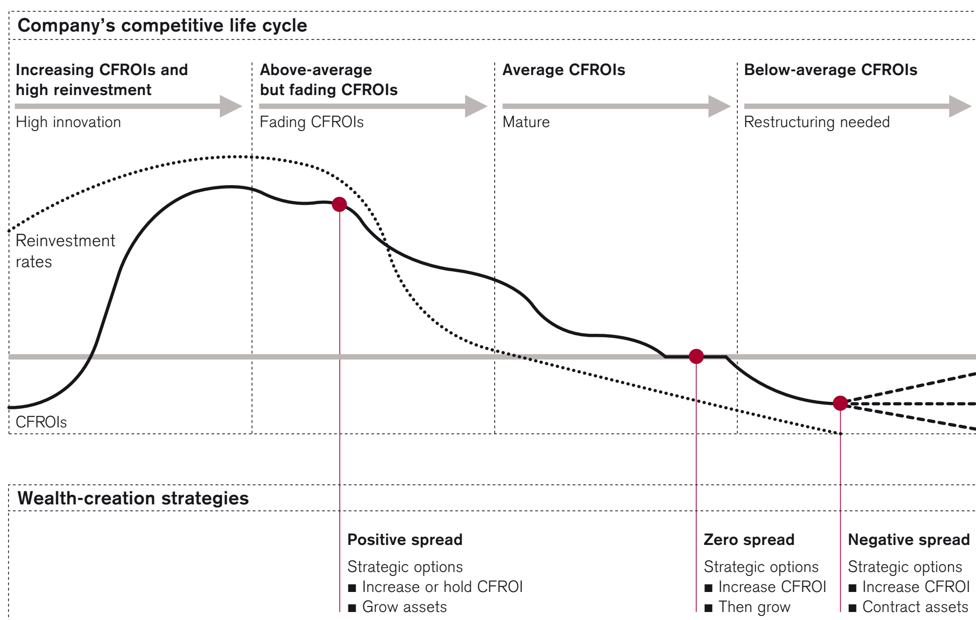
Does the software program make these adjustments automatically?

Robin Seydoux: It does, but they are checked by sector specialists in order to ensure data integrity. As soon as a new set of annual or quarterly results is available and has been recalculated by HOLT, these experts will verify that the adjusted data is correct. Of course, this cannot be done with every single one of the 18,000 companies in the database but certainly the most important ones, i.e. the blue chips.

If HOLT is so good, are analysts even needed?

Life cycle reveals future corporate strategies

The past has shown that the CFROI and the growth of invested capital eventually level out worldwide around 6% and 2.5%, respectively. Knowing where a company is in its life cycle is an advantage when predicting its future strategies. Source: HOLT



Robin Seydoux: HOLT is a great tool to work with, but naturally it cannot replace the work that analysts do. In fact, this valuation software allows analysts to concentrate on what they really should be doing – analyzing companies and making sound investment recommendations. The system produces a core scenario for every company, but there are many other possibilities for peering into the future with this tool. For example, instead of using the default settings, other inputs can be given as the basis for calculation. This means HOLT users can create their own specific scenarios with just a few clicks, change sales or margin data, take a bullish or bearish stance. In the end this can lead to decisions to buy a certain stock even if the model's default valuation suggests otherwise. It is extremely important, then, that users develop scenarios of their own. And analysts are needed for another reason, too: for the precise interpretation of the data that is generated by HOLT.

What exactly does that entail?

Robin Seydoux: Let's say that I have projected the sales and margins of a company for the next five years and then have HOLT make its calculations based on my estimates. The system will calculate the annual CFROI and the estimated growth of invested capital so far into the future until they have reached the historical real average rates of 6% (CFROI) and 2.5% (growth of invested capital), which corresponds to the average rates achieved in the USA over the past 40 to 50 years. Looking at the curves that are produced by the model, we can see the various life cycles that a company goes through over time. Knowing which life cycle a company is in helps you to better anticipate its future strategies. Let's take Nestlé as an example. This is a food company that is still producing high returns, but the growth potential in its core business is limited. This gives it two possibilities: either it grows through acquisitions or it funnels excess cash back to shareholders through share buyback programs.

Can HOLT also be used to evaluate unlisted companies?

Robin Seydoux: That is not a major function of HOLT, but it is theoretically possible. The relevant data for the past five years needs to be entered into the system manually, and then the program can calculate future values.

Software with an integrated database

HOLT Value Search contains financial data on more than 18,000 companies worldwide that can be reliably compared across different periods of time and across different countries. With this platform asset managers can make precise projections about the future capital returns of a company and detect deviations to current market expectations. The acronym HOLT comes from the names of the four people who initially developed the valuation software in Chicago back in the 1980s. Credit Suisse First Boston bought HOLT Value Associates in 2002 and has since overseen its ongoing development and commercialization. More than 50 specialists worldwide are constantly working on improving the model and updating the database.

Do end clients at Credit Suisse have access to HOLT?

Robin Seydoux: No, the program is sold only to institutional clients. In-house, we have analysts and portfolio managers at Asset Management and Private Banking who use the valuation platform, as does Investment Banking. Credit Suisse is in a class of its own in this regard; no other investment bank has access to HOLT. To my knowledge, there are no comparable software programs on the market that are as sophisticated and ingenious as HOLT.

What are the benefits for private clients then?

Robin Seydoux: The main benefit, of course, should be a better investment return! In addition, HOLT can strengthen a client's confidence in the services Credit Suisse offers. After all, the software is a guarantee that the fundamental valuation and analysis of the companies Credit Suisse covers are backed up by a highly advanced and reliable system that helps the bank to make sound investment decisions. Thanks to this tool, Credit Suisse Research staff can also focus more on the important things in their line of work, the inputs, without having to first fiddle around with a model that might produce unreliable results. This means they have more time to think about a company's strategy and valuation instead of worrying about numbers and number crunching.

What in-house experiences have been made with HOLT so far?

Robin Seydoux: There was some reluctance to use the software at first. HOLT is a complex program, and intensive training and guidance are necessary until users are familiar with the software. Another difficulty is that it is not always possible to reconstruct or see every step HOLT takes in making its calculations. Having a ready-to-use model is an advantage, of course, but, on the other hand, this also requires a certain level of trust on the part of the users. The positive experiences we have made with HOLT certainly outweigh these points, however. The quality of the software becomes apparent the more a user relies on it. Users are more comfortable with their company valuations and can ask company management more revealing questions when they can run through various scenarios of their own and see the resulting outcomes. Another advantage with this program is that all users within the bank are, so to speak, using the same language. The model itself is not so much a topic of discussion as are the inputs that are used in producing individual scenarios. These discussions are more objective, then, and sometimes more intense. Which ultimately enhances productivity and the quality of our projections. ■

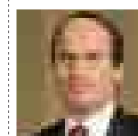


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Photo: Martin Stollenwerk

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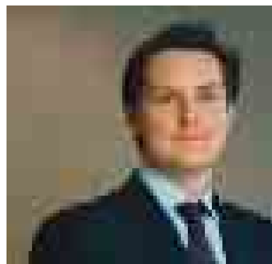

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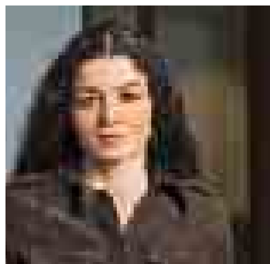

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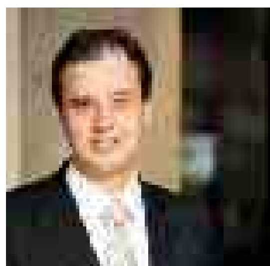

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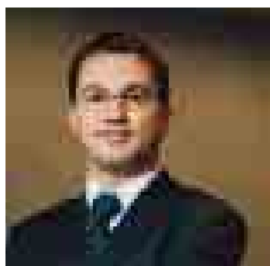

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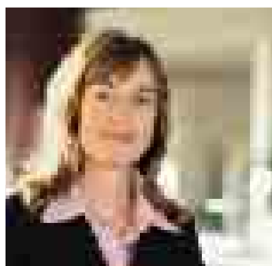

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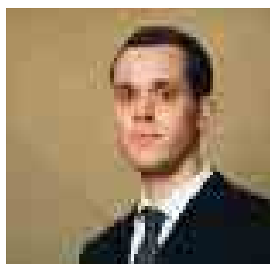

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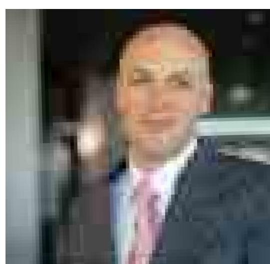

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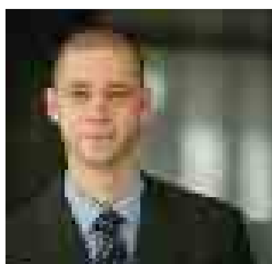

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Equity rating history as of 23/04/2007

Company	Rating	Date (since)
A.P. MØLLER-MAERSK (MAERSKB DC)	HOLD	01/03/2007
ADVA OPTICAL NETWOR (ADV GR)	BUY	04/04/2007
AFG ARBONIA (AFG SW)	HOLD	21/03/2007
	BUY	14/10/2005
ALCATEL-LUCENT (CGE FP)	BUY	24/10/2006
	HOLD	24/03/2006
	BUY	04/01/2005
	HOLD	09/01/2004
	SELL	12/09/2003
AMDOCS (DOX US)	BUY	05/04/2007
	HOLD	28/09/2006
	BUY	23/03/2006
BT GROUP (BT/A LN)	HOLD	04/04/2007
	SELL	09/11/2006
	HOLD	08/07/2004
	BUY	02/12/2003
CALIDA HLDG N (CALN SW)	BUY	28/03/2007
CAP GEMINI (CAP FP)	BUY	20/03/2007
	BUY	26/07/2006
	HOLD	24/02/2006
	BUY	29/09/2005
	HOLD	06/05/2004
	BUY	05/09/2003
CIENA (CIEN US)	BUY	28/03/2007
CISCO SYSTEMS (CSCO US)	BUY	08/02/2006
	HOLD	10/11/2005
	BUY	15/07/2004
	HOLD	04/05/2004
DEUTSCHE BANK R (DBK GR)	BUY	01/09/2006
	HOLD	02/02/2006
	BUY	03/02/2005
DEUTSCHE POST N (DPW GR)	BUY	19/04/2007
	HOLD	14/08/2006
	BUY	10/01/2006
	HOLD	02/09/2005
	BUY	13/04/2005
DEUTSCHE TELEKOM N (DTE GR)	HOLD	21/03/2007
	HOLD	14/08/2006
	BUY	07/03/2006
	HOLD	19/08/2005
	BUY	25/08/2004
	HOLD	06/01/2004
	BUY	29/09/2003
FRANCE TELECOM (FTE FP)	HOLD	27/07/2006
	BUY	16/02/2006
	HOLD	19/12/2005
	REST	27/10/2005
	HOLD	19/07/2005
	BUY	11/06/2004
	HOLD	23/02/2004
	BUY	29/09/2003
GEBERIT N (GEBN SW)	BUY	18/01/2007
	HOLD	04/05/2006
	BUY	25/04/2006
	BUY	21/04/2006
	HOLD	18/06/2004
	HOLD	06/04/2004
	BUY	20/01/2004
	HOLD	03/11/2003
GEORG FISCHER SH N (FI/N SW)	BUY	07/01/2005
GOLDMAN SACHS GROUP (GS.N)	BUY	13/03/2007
	HOLD	02/02/2007
	HOLD	13/05/2005
	BUY	18/03/2005
GOOGLE-A (GOOG)	BUY	28/02/2007
	HOLD	14/12/2006
	BUY	27/02/2006
	HOLD	21/11/2005
	BUY	02/02/2005
	HOLD	01/10/2004
HALYK BANK (HSBK LI)	BUY	28/03/2007
HIESTAND HLDG N (HIEN SW)	BUY	11/04/2007
	HOLD	12/06/2006
IBM (IBM US)	HOLD	18/04/2007
	BUY	05/03/2007
	HOLD	10/07/2006
	BUY	27/04/2005
	HOLD	17/03/2005
	BUY	21/05/2004
	HOLD	21/04/2004
KAZKOMMERTSBANK (KKB LI)	BUY	23/03/2007
KOMAX HLDG N (KOMN SW)	BUY	01/09/2006
KONINKLIJKE KPN NV (KPN NA)	HOLD	31/10/2006
	BUY	24/08/2005
	HOLD	01/11/2004
	BUY	29/01/2004
KUEHNE+NAGEL INT N (KNIN SW)	HOLD	14/03/2007
	HOLD	14/10/2005
KYOCERA (6971 JP)	BUY	23/08/2006
	HOLD	07/03/2006
	BUY	04/10/2005
	HOLD	26/07/2005
	BUY	20/04/2005
	SELL	27/01/2005
	BUY	17/05/2004
LUKOIL SP ADR (LKOD LI)	BUY	30/05/2006
	BUY	19/01/2006
	BUY	26/05/2005
	BUY	07/05/2004
	BUY	06/02/2004
NIPPON TEL&TEL (9432 JP)	HOLD	24/01/2007
	HOLD	24/06/2005
	BUY	19/04/2005
PANALPINA WELTTRA N (PWTN SW)	BUY	19/04/2007
	HOLD	16/03/2007
	HOLD	28/02/2007
	BUY	10/08/2006
	HOLD	04/01/2006
PETROBRAS ADR (PBR US)	BUY	15/02/2007
	BUY	13/07/2006
	BUY	28/02/2006
	BUY	18/10/2005
PETRO-CANADA (PCA CN)	BUY	09/06/2006
PROLOGIS-SBI (PLD US)	BUY	26/03/2007
Q-CELLS (QCE GR Equity)	BUY	05/02/2007
	HOLD	12/12/2006
ROSNEFT (ROSN LI)	BUY	05/01/2007
SHARP CORP OSAKA (6753 JP)	BUY	06/02/2007
	HOLD	24/01/2007
	HOLD	14/12/2005
	BUY	17/08/2005
	HOLD	25/07/2005
TALLINK GROUP LTD (TAL1T ET)	HOLD	24/01/2007
UBS N (UBSN VX)	BUY	04/01/2007
	HOLD	31/10/2006
	BUY	01/11/2005
	HOLD	09/08/2005
VERIZON COMM (VZ US)	HOLD	30/10/2006
	BUY	17/03/2006
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	BUY	27/07/2004
YAHOO (YHOO US)	BUY	18/01/2006
	HOLD	21/11/2005
	BUY	19/03/2004

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Guide to analysis

Equity rating allocation as of 23/04/2007		
	Overall	Investment banking interests only
BUY	47.73%	46.50%
HOLD	48.06%	49.22%
SELL	2.43%	2.14%
RESTRICTED	1.78%	2.14%

Relative performance
At the stock level, the selection takes into account the relative attractiveness of individual shares versus the sector, market position, growth prospects, balance-sheet structure and valuation. The sector and country recommendations are "overweight," "neutral", and "underweight" and are assigned according to relative performance against the respective regional and global benchmark indices.

Absolute performance
The stock recommendations are BUY, HOLD and SELL and are dependent on the expected absolute performance of the individual stocks, generally on a 6–12 months horizon based on the following criteria:

BUY	10% or greater increase in absolute share price
HOLD	variation between –10% and +10% in absolute share price
SELL	10% or more decrease in absolute share price
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AA	Obligor's capacity to meet its financial commitments is very strong
A	Obligor's capacity to meet its financial commitments is strong
BBB	Obligor's capacity to meet its financial commitments is adequate, but adverse economic/operating/financial circumstances are more likely to lead to a weakened capacity to meet its obligations
BB	Obligations have speculative characteristics and are subject to substantial credit risk due to adverse economic/operating/financial circumstances resulting in inadequate debt-servicing capacity

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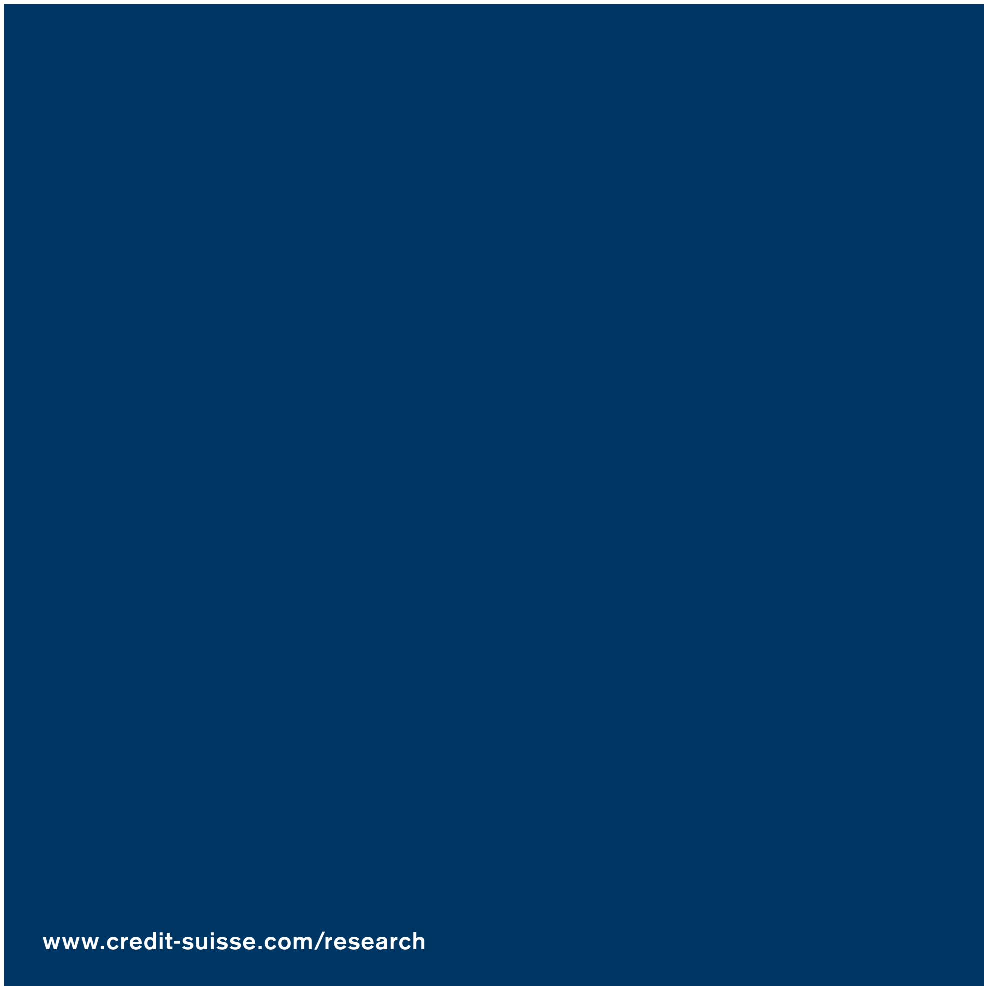

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