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Pension Trends in Emerging Markets – The Rise of DC Plans and Its Consequences

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Pension Trends in Emerging Markets – The Rise of DC Plans and Its Consequences

Critical Issues

Central and Eastern Europe (CEE) and Asia have undertaken far more extensive and fundamental pension reforms than those in Western industrialised countries. The basis of the reforms in both regions is a strong, fully funded pillar:

- The pillar is of the defined contribution (DC) type in all and participation is mandatory in most countries.
- Portability, transparency and calculability were the primary considerations in introducing DC systems.

Three key drivers of pensions reform are evident:

- Asian aspiration to establish formal pension systems
- Lack of sustainability of previous CEE pension systems
- Significant demographic changes resulting in an unprecedented speed of ageing

To ensure the sustainable success of DC plans and adequate living standards after retirement, government and stakeholders need to address four issues:

(1) improving financial education; (2) designing adequate plans; (3) providing transparent and suitable products; (4) introducing appropriate regulations.

The new DC systems will rapidly build a massive amount of pension assets.

The yearly growth rate is projected to be 19% for CEE and 17% for the emerging Asian economies.

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Introduction

A wave of pension reforms has been implemented in industrialised countries since the early 1990s. Less publicised, but more far reaching are those reforms implemented in emerging economies¹. In the emerging economies of Asia and Central and Eastern Europe (CEE), demography is a powerful driver of reform as the outlook is not much rosier for many emerging economies than for the industrialised countries in terms of the aging population.

However, demography is not the sole reason for pension reform. At least as important are the facts that previous systems in CEE lacked sustainability and the aspiration of Asian countries to establish formal pension systems. Obviously, economic, political and cultural differences between the emerging economies are huge. Nevertheless, many emerging economies have followed a similar path of reforms, one that greatly differs from that taken in the industrialised world.

This reform path is based on a strongly funded pension pillar that takes the form of individual defined contribution (DC) accounts². Broadly speaking, there is a considerable degree of convergence in the pen-

sion systems of the emerging markets. This pattern has profound implications for all stakeholders. Pension plan members are more dependent than before on capital markets for their retirement income. They enjoy greater degrees of freedom, but also have greater responsibility. The public policy challenge is to provide them with financial education so they can handle this new responsibility sensibly. The rise of DC schemes also requires appropriate plan design and regulation so that the advantages of DC plans can flourish. As capital market development is often at an early stage in emerging economies, regulation can be crucial for the success of DC plans. Lastly, financial services providers need to develop and deliver the right retirement products and solutions, taking into account the demand structures of the country in question.

This paper investigates the results of pension system reforms, the reasons for the reforms, their consequences and the future development of pension markets. It focuses on Asia and CEE, as most countries described under the label of emerging markets are located within these two regions.

1 This paper covers Bulgaria, China, Croatia, the Czech Republic, Estonia, Hong Kong, Hungary, India, Latvia, Lithuania, Poland, Romania, Singapore, Slovakia, Slovenia, South Korea, Taiwan and Thailand. There is no uniform definition of emerging economies. The World Bank divides economies into: low, lower middle, upper middle and high income. Low- and middle-income economies are usually considered emerging economies if they have high growth rates. Several economies examined are high-income economies, such as the Czech Republic, Estonia, Hong Kong, South Korea, Singapore, Slovenia and Taiwan. They are emerging in the sense that they only recently became high-income economies as opposed to traditional industrialised countries like the United States and Western Europe.

2 South Korea is the only country in the sample where recent pension reforms allowed DB plans in addition to DC plans.

The Design of Pension Reform

The Asian and CEE countries had significantly different starting points for pension reforms. The most obvious differences being economic development and wealth. Almost all of the countries are growing quickly, however, some are developing from very low levels. The poorest country is India with a GDP per head that is only a fortieth of that

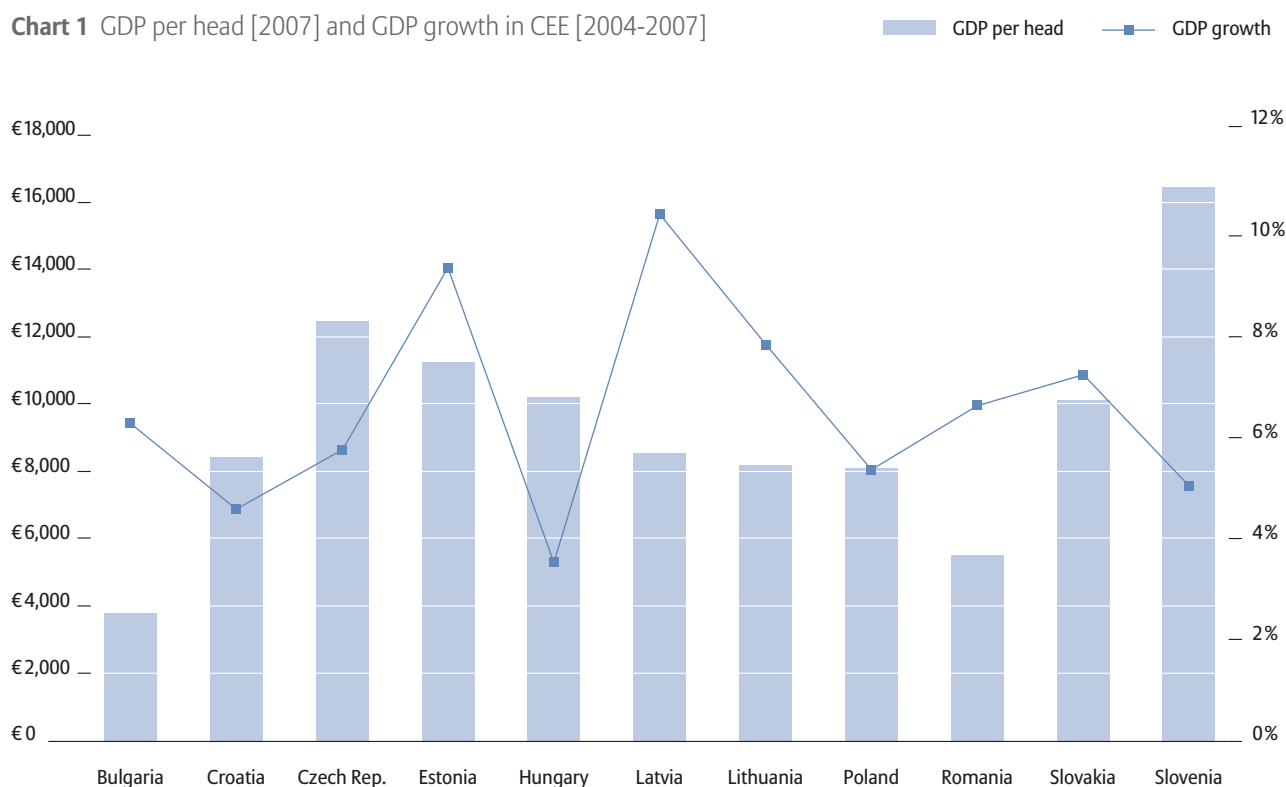
of Singapore. The richest CEE country, Slovenia, has a per capita income only 60% of Singapore, but is still ten times wealthier than China. So, the economic differences between the countries are enormous, which makes the similarity of solutions implemented in both regions even more surprising. (Chart 1/2)

CEE

The CEE reforms occurred during the transition from a command to a market economy. Under socialist rule, pensions were the exclusive realm of the state. The link between contribution and benefits was tenuous with benefits largely depending on years of service. The retirement age was generally low

and several occupations enjoyed considerable privileges. Obviously, this system could not be retained when the CEE countries transformed into market economies. However, the situation was aggravated during the beginning of the transformation. High official unemployment and increasing employment in

Chart 1 GDP per head [2007] and GDP growth in CEE [2004-2007]



Source: Allianz Dresdner Economic Research, Eurostat

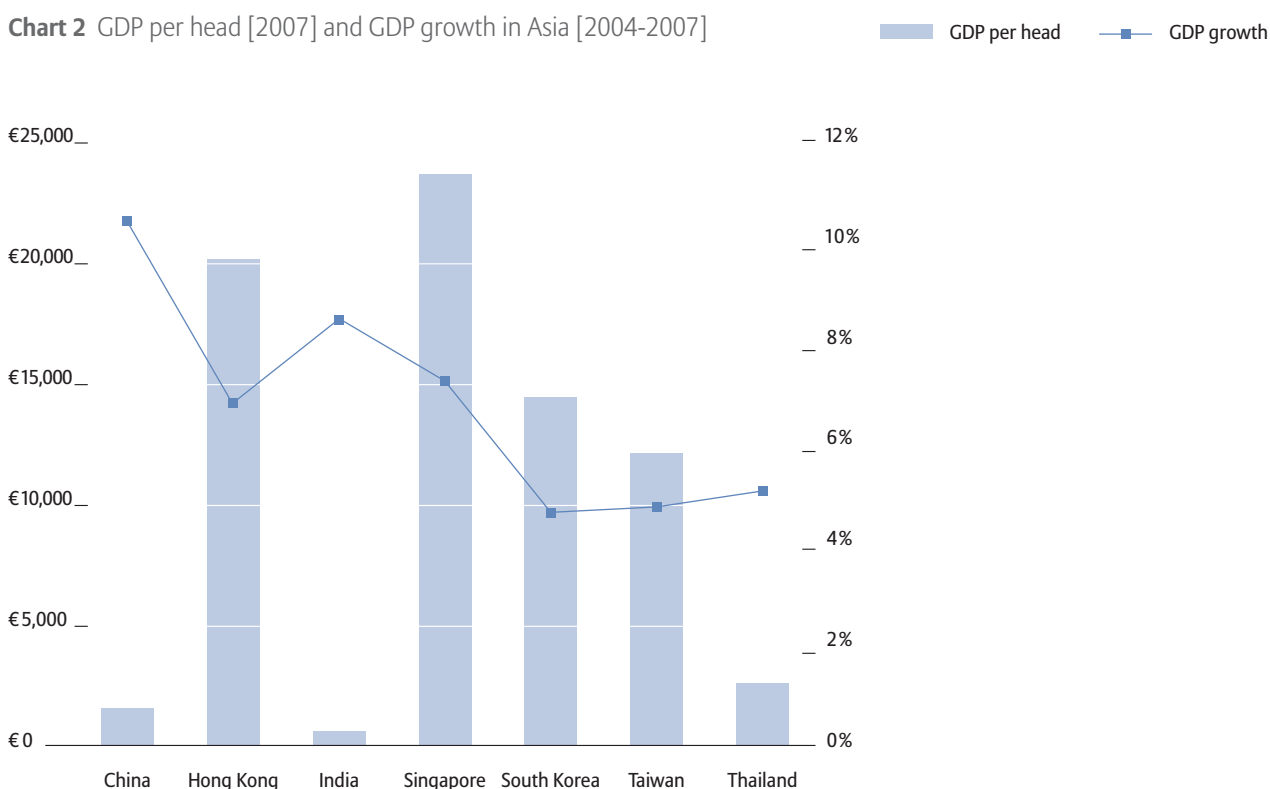
the shadow economy coupled with a skyrocketing number of pensioners (resulting from early retirement programs) put dramatic strains on the then-existing system.

In response, all CEE countries initiated parametric reforms in the public pillar, such as increasing retirement age, reducing incentives for early retirement and establishing a stronger link between contribution and benefits. As part of the reforms undertaken from the 1990s onwards, many countries introduced a mandatory capital-funded pillar. These followed World Bank recommendations and include individual DC accounts.

The system works like this. A portion of the social security contribution to public pensions is redirected into a private pension

fund selected by the member. Hungary was the first country to introduce such a system in 1998, followed by Poland. The most recent countries to introduce this pension design were Slovakia in 2005 and Romania in 2007. Of the 11 CEE countries, eight have now introduced such a mandatory pillar. Only the Czech Republic (which relies on voluntary pension savings), Slovenia (which runs a Western-style occupational pension system) and Lithuania (which has a funded pillar on a voluntary basis) remain the exceptions.

Chart 2 GDP per head [2007] and GDP growth in Asia [2004-2007]



Source: Allianz Dresdner Economic Research

The World Bank model of pension reform

A strongly funded pillar operating on a mandatory basis is the key element of the World Bank model of pension reform. The model aims to establish a multi-pillar approach and the rationale is simple. A pension system has three functions: to provide savings, redistribution and insurance. A dominant public pillar (or any other form of single pillar system) is unable to fulfil all these functions equally and efficiently. The over-reliance on the public pillar results in labour and capital market distortions, ill-targeted redistribution and old-age insecurity due to political or inflation risks. As a result, according to the World Bank model, pension systems should consist of at least three pillars. The public pillar should alleviate old-age poverty through redistribution and insure against a multitude of risks. The second pillar should also be mandatory and fully funded. It fulfils the savings function and boosts capital accumulation and financial market development. In principle, both occupational and private plans are possible in this pillar. Finally, the third pillar should provide private retirement savings for those who prefer greater financial security in their old age. This multi-pillar approach separates the functions of savings and redistribution, while all three pillars combine to provide insurance (World Bank 1994).

Pension reform in Hungary

In 1998, Hungary was the first CEE country to introduce mandatory pensions, providing a role model for other CEE countries. It also substantially restructured its public pension pillar and introduced voluntary pension funds. The funded pillar was made compulsory for new labour market entrants younger than 42 years of age, while existing employees could choose to join or not. Around 50% of the labour force opted in. Other CEE countries have achieved similar rates, reflecting a lack of trust in the public system. Of the total contribution of 26%, 8% goes into individual accounts. The mandatory funds can invest up to 30% of their assets abroad; a maximum limit on equities was lifted in 2005. In other regards, Hungarian investment regulation is also comparatively liberal. Pension funds can invest a minor share of their assets in hedge funds and private equity. Recently, Hungary introduced a fourth pillar to further boost private pension savings and financial market development.

Pension reform in China and India

The challenges of pension reform are particularly pressing in China and India. Both countries are undergoing staggering economic growth and, as a result, experiencing a loosening of family-based old-age provision. In the case of China, this is compounded by an adverse demographic development. Increasing the coverage rates of the formal pension system is the main challenge for both countries. China started pension system reforms in the late 1990s, before that a cradle-to-grave social security system based on state-owned enterprises existed. The new system consists of a public pay-as-you-go approach with mandatory DC accounts and voluntary occupational pensions, known as Enterprise Annuities. The system is in the process of being implemented and currently only applies in urban areas. One of the main problems is that many accounts in the mandatory funded pillar are empty as local governments used that capital for other pension payments. Pilot projects to refill this 1B pillar are ongoing. The coverage rate is 50% in urban areas and 9% in rural areas (where a different, voluntary and locally administered system is in place).

India has a highly fragmented system with a limited social safety net, several schemes for public servants and two mandatory schemes for private employees (from which employers can opt out and establish company funds). There are also voluntary occupational schemes and a public provident fund for voluntary savings. Except for the latter, these schemes exclusively cover the formal workforce (around 12% of the population). Recent reforms were less ambitious than in China. To ease pressure on public finances, a new DC scheme was established for public servants to replace the old DB scheme. It will also be open to all citizens on a voluntary basis in hopes that informal sector workers will join. However, political opposition has hampered its development.

Asia

Although the World Bank model has also been the broad leitmotiv of pension reforms in Asia, these emerging markets came from a completely different starting position. Whereas CEE countries needed to radically restructure an existing, yet moribund system, the emerging Asian countries had to establish a formal pension system from scratch. This process is still ongoing.

Traditionally, the main component of retirement income in Asia has been family support from one's own children. Strong family values and social norms supported this pattern. For example, in 1990 the average South Korean over 60 years of age received 32% of his/her income from working, 55% from children, 10% from other sources and 3% from public and private pensions

(World Bank 2000). Comprehensive public pension systems and private schemes were virtually non-existent, except for public sector employees. When South Korea introduced a public pension system in 1988, it was the first country to do so.

However, socio-economic changes have put the family support system under pressure. Rapid economic growth and industrialisation have led to a decline of the agricultural sector, decreasing fertility rates, increasing longevity and to a rapid urbanisation coupled with increased mobility. For instance, the urbanisation rate in South Korea grew from 28% in 1960 to 80% in 2005.³ As a result, the need for formal retirement systems has grown tremendously to help people avoid widespread old-age poverty. The focus of re-

forms has been very much on funded occupational pensions. Several countries in Asia, such as Hong Kong and India, do not operate a public pay-as-you-go system.

The rush towards funded DC pensions began in the late 1990s. Since then, China, Hong Kong, India, and Taiwan have all introduced DC schemes of various designs, while Thailand plans to do so. Singapore has had a DC scheme since 1955, which is the only pillar of its welfare and pension provision. South Korea modernised its company pension system through the introduction of defined contribution and defined benefit schemes. A trendsetter was Australia, which introduced a mandatory DC scheme in 1992 and is often seen as a role model for the region.

³ Unless otherwise stated, data were provided directly by the OECD.

Reform Results

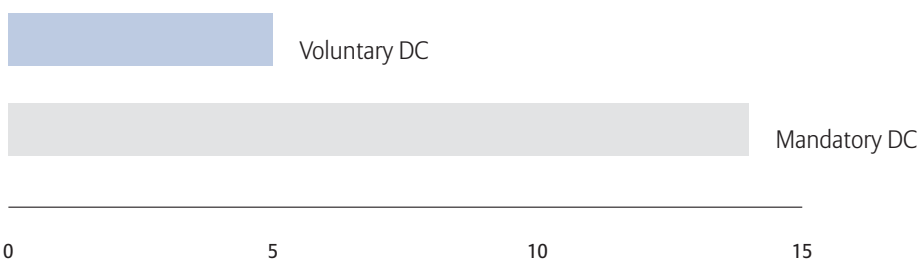
The following table shows the results of pension reforms in Asia and CEE. Almost all countries in the regions have now introduced DC schemes. Of the 18 countries investigated, 17 have introduced DC schemes, of which 14 are mandatory.⁴ (Chart 3)

An important dimension of DC schemes is the issue of individual choice. This has

wide-ranging implications for regulations, products and the autonomy of pension plan members. Individual choice is widespread in the emerging markets investigated. Most countries allow some form of individual choice, but that choice is constrained. Hong Kong offers the greatest choice with most employees covered by master trust schemes. In these schemes, there is normally a choice

⁴ In the graph, China is counted twice as the country has introduced a mandatory and a voluntary DC scheme.

Chart 3 Number and type of DC schemes in Asia and CEE



Mandatory DC: Bulgaria, China (1B pillar), Croatia, Estonia, Hong Kong, Hungary, India, Latvia, Poland, Romania, Singapore, Slovakia, Taiwan, Thailand
 Voluntary DC: China (EA), Czech Rep. (private DC), Lithuania, Slovenia, South Korea (DC/DB)

Table 1 Investment choice in pension plans *

	No investment choice	Individual investment choice
Mandatory occupational pensions	Bulgaria China (1B pillar) Croatia Romania Taiwan	Hong Kong Singapore India (planned) Hungary Slovakia Poland Estonia Latvia
Voluntary occupational pensions	China (Enterprise Annuities) Slovenia	South Korea Lithuania
Voluntary private pensions only	Czech Republic	

* Whether or not there will be individual choice in Thailand's system is not yet decided

between four and six investment funds. In all, more than 300 funds are approved.⁵ In the other countries, the choice set usually consists of three options with differing risk-return profiles.

In CEE, the trend is to allow members a choice of three options when they are young and assign them to the most conservative fund when they approach retirement so as to minimise investment risk. This system is in place in Slovakia and will be introduced in Hungary from 2009 onwards. What drives the decision to allow individual choice is an under-researched issue. Political, cultural and economic factors all have a crucial impact, however, how they exactly influence the decision is unclear. (Table 1)

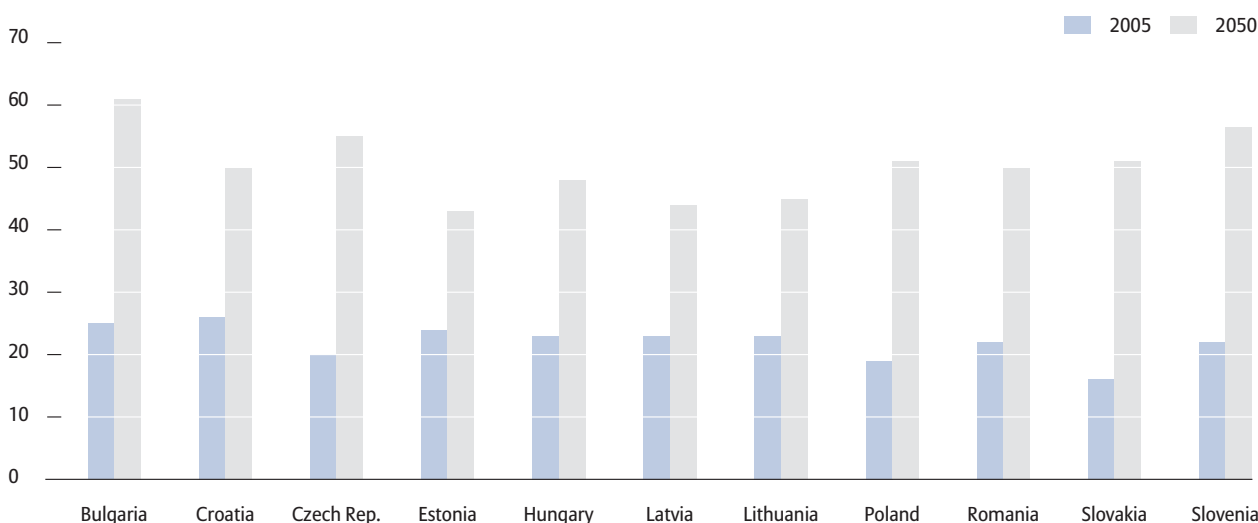
Almost all emerging economies apply quantitative restrictions to their pension fund investments. There are maximum limits either for certain investment classes, especially equities, or for foreign investments. For

example, the limit for equity investments is between 20 and 40% in Bulgaria, Croatia, Poland, Singapore and Slovenia. It is lower in the Chinese Enterprise Annuity system. In countries with individual choice, retirement wealth is dependent on the chosen fund and its risk-return profile. However, strict limitations to asset classes can make individual choice appear meaningless. For example, DC plans in South Korea cannot invest in equity or equity funds and in funds with 40 to 60% equity share. What they can do is to invest in funds with a share of foreign bonds and in investment-grade bonds of OECD countries, but in both cases only to 30% of assets. Hence, meaningful differences in risk-return profiles are not possible. In addition, international investments are constrained. Poland has the tightest restrictions – only 5% of assets can be invested outside the country. In countries such as Hong Kong or Slovakia, foreign investments can amount to 70% of assets.

5 Data in this and the following section are taken from Allianz Global Investors 2007a and 2007b.

Demographic Trends

Chart 4 Old-age dependency ratios CEE



Source: Allianz Dresdner Economic Research

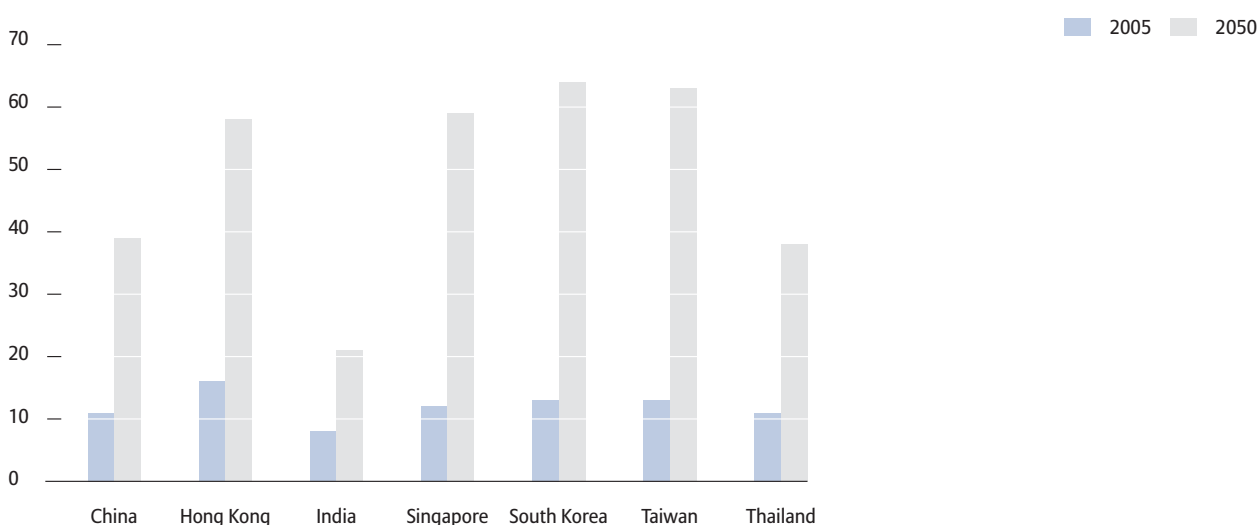
Pension reform in the emerging markets has been mainly triggered by three factors: the aspiration of Asia to increase coverage of formal pension arrangements, lack of sustainability of the socialist system in CEE and foreseeable demographic developments. Contrary to popular expectations, it is not only the industrialised countries that are aging. In several emerging markets population ageing is even more severe than in the industrialised world and, on average, comparable in magnitude.

The old-age dependency ratio is the most common indicator to measure ageing. It depicts the ratio of the population 65 years and over in relation to that aged 15 to 64. In other words, it measures how many pensioners there are for every 100 people of working age. The higher the ratio, the higher the financial burden imposed on the working population if a public pay-as-you-go system is in place. For instance, Western European EU members

will see their old-age dependency ratio rise from 26 in 2005 to 53 in 2050. The problem is not as acute in the United States, but the old-age dependency ratio will still climb from 18 to 34.⁶

Demographic developments in the emerging markets are more dramatic than in the United States and often surpass even Western Europe. For example, dependency ratios in Bulgaria, the Czech Republic, Hong Kong, Singapore, Slovenia, South Korea and Taiwan will be higher than in Western Europe; Croatia, Hungary, Poland, Romania, Slovakia will come close. Among the 18 countries investigated, only one will have a more favourable dependency ratio than the United States, namely India. On average, the ratio of the emerging economies will increase from 18 today to 50 in 2050. The CEE countries are slightly older today, with a ratio of 22, but will end up with a value of 50. Asia's dependency ratio will rise from 12 to 49. If India is excluded

6 The old-age dependency ratio in 2050 reflects the expected development of pensioners to working age population.

Chart 5 Old-age dependency ratios Asia

Source: Allianz Dresdner Economic Research

ed, the Asian countries will have a ratio of 54 in 2050, slightly more unfavourable than in Europe. (Chart 4/5)

The most important issue in this process is speed of ageing. Currently, the ratios are more favourable than in industrialised countries, so ageing will progress at an unprecedented pace. China is a case in point: the country will become old within one generation. According to the World Bank, the working population as a share of total population will peak in 2011 at 882 million and fall steadily afterwards at a rate of 0.1 to 0.4% per year (World Bank 2007). Within the next 20 years, the share of over 65-year-olds will double and within the next 40 years more than triple (United Nations Population Division Database). As a result, China and other affected countries had to – and will continue to have to – react fast.

The main reason for the ageing process is the combination of higher longevity and declining fertility rates. Rising life expectancy is due to reduced mortality in higher age groups caused by better nutrition, living conditions, hygiene and access to medical treatment. This especially applies to the Asian emerging economies. For example, average life expectancy in South Korea has increased by more than 30 years since the early 1950s. Since the early 1980s, it increased by around 11 years. South Korea also offers a dramatic example of decreased fertility. While in the 1960s, the average South Korean woman gave birth to six children, nowadays the fertility rate is 1.2 children per woman. To keep the population constant, a fertility rate of 2.1 children would be required. These developments taken together have two consequences: a shrinking and an older population.

Why DC Schemes?

To address this situation, governments in emerging markets aimed to establish funded pillars that provide adequate retirement savings without interfering with macro-economic goals while providing enterprises with sufficient flexibility. The traditional model of pension provision through defined benefit plans in industrialised countries was not attractive as these are, for various reasons, in the process of being restructured themselves and an ongoing shift towards DC plans is evident.

The main characteristic of DC plans is that they are long-term savings. In their pure form, DC plans do not have an insurance or guarantee component. In other words, capital accumulation is determined by contribution rate and asset performance. In a DB plan, pension benefits depend on the employee's final or average salary. Benefits are defined in advance and the employer must cover them irrespective of asset performance.

This implies a different risk allocation. In DC plans, the investment risk – the risk that assets perform poorly – is borne by the pension plan member. In a DB plan, the plan

sponsor assumes this risk. On the other hand, if assets perform better than expected or in line with expectations, DC plan members benefit. The second major risk of pension provision, the risk of outliving one's assets (longevity risk), is also borne by DC plan members, while in DB plans the sponsor has to shoulder it. In return, wage path, job tenure and default risk is borne by the member in DB plans, but greatly reduced in DC plans (Oxera 2008). This makes it hard, if not impossible, to determine which plan is better in any absolute sense as the choice inevitably involves trade-offs.

Those features of DC plans that are most attractive to firms and governments in emerging markets are portability and calculability. As DC plans are mostly individual accounts, these individual accounts can be easily transferred from previous to new employers without any disadvantages. In DB plans job changes reduce pension benefits as expected pension benefits normally accrue only to employees who stay with their employer throughout their career (Broadbent, Palumbo, Woodman 2006). This is not surprising as one of the main motivations for DB plans

Vesting requirements in Taiwan's old DB system

Another problem of DB plans are vesting requirements. Under the old occupational DB system in Taiwan, the Old Labour Pension Fund, employers were obliged to contribute between 2 and 5% of the employees' gross salary to the fund. Despite the mandatory character of the system, only around 10% of private sector employees were eligible for benefits. This was mainly the result of vesting requirements and their poor fit with labour market conditions and company structures. Employees were required to have worked for more than 25 years for an employer to receive benefits. However, the average tenure was less than nine years and the average life span of firms 13 years. As a result, only employees of large companies or state-owned enterprises were likely to receive benefits.

is the retention of employees and so long-tenure is rewarded (Munell 2006). However, job mobility is increasing, so the reduction of pension benefits in case of job switching is detrimental for employees.⁷ Consequently, DC plans are beneficial for mobile employees.

Another advantage of DC plans from the viewpoint of employers is the calculability of financial payments. As they must only pay defined contributions to the plan, employers avoid the risk of unexpected payments associated with employee retirement in cases where capital markets develop worse than

expected or retired employees live longer than foreseen in mortality tables. This is a danger that can threaten the existence of companies and is illustrated by the US automobile industry. General Motors is reported to have projected pension obligations of around USD 85 billion (Global Pensions, 9 August 2006). Other advantages for employers include lower administrative costs, especially as DB regulation has grown increasingly complex.

A structural reason for the popularity of DC plans in emerging markets is the indus-

7 In the UK, it is estimated that a worker who switches jobs six times in his/her career experiences portability losses in DB schemes of 25-30% of the full service pension (of someone with the same salary but a full career at the same employer). See Blake 2003.

Establishing voluntary DC plans in China: Enterprise Annuities

Chinese pension reform of the late 1990s introduced occupational pensions into the country. In 2004, a voluntary occupational DC system was created, known as Enterprise Annuities (EA). Many existing funds were accumulated before EA legislation and are referred to as legacy EAs. These take several forms and are managed by the regional administration, local social security bureaus, industry-wide bodies or by insurance companies. Legacy EAs account for EUR 7.3 billion (RMB 75 billion) in pension assets, newly created EAs for EUR 1.6 billion (RMB 16 billion). Legacy EAs are allowed to continue to operate, but will be required to comply with EA legislation in the future and do not enjoy preferential tax treatment. In case of new EAs, employer contributions are tax-exempt up to 4% of wages, while there is no tax benefit for employee contributions. However, tax treatment is subject to regional differences.

The new EAs were adopted by 263 enterprises and cover 940,000 employees as of mid-2006. EAs must be established as a trust that can take the form of either an internal (pension council) or external trustee (professional trustee). The Lenovo Group registered the first countrywide EA plan in 2006. One of the main hurdles in the future is the low acceptance of EA plans among small- and medium-sized enterprises (SMEs). Only 50 of 23 million SMEs in China had registered new EA plans by mid-2006. The limited tax relief, high administrative costs, missing awareness and knowledge of the EA system, as well as a tendency to avoid participating in the social security system, are key reasons for the low acceptance of EA plans among SMEs (Hu et al. 2007).

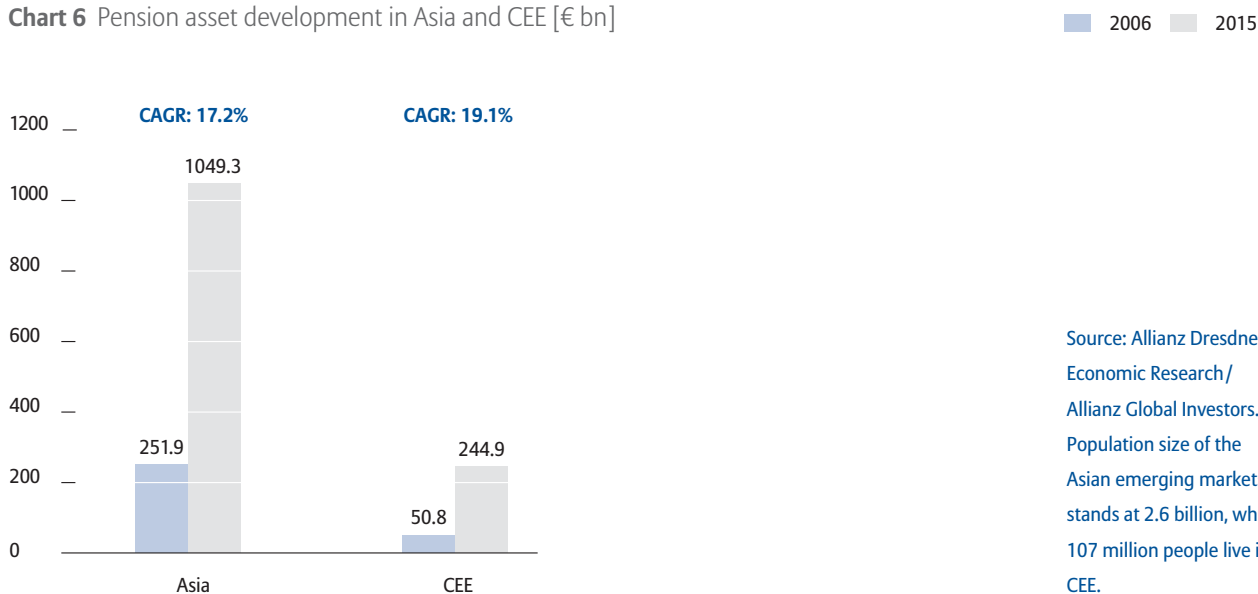
trial composition of these economies and economic trends. In the industrialised world, especially the United States, DB plans tend to be concentrated in unionised, well-established and large firms with a high share of long-service workers (Munnell 2006; Clark, Monk 2006), while employment is increasingly shifting towards high-tech and service sectors and to smaller firms for which DC plans are more suitable. The economic structure of Asia mainly consists of small firms.

Among the 3.2 million firms in South Korea, one of the economically most advanced countries in Asia, 3 million have less than ten employees (OECD 2007). Hence, a company DB pension fund would not make sense for the overwhelming majority of firms in this context; for risk sharing between and among cohorts, the average firm size is far too small. The alternative of establishing industry-wide DB plans has not been pursued in any of the countries yet.

For all these reasons, coupled with advice from the World Bank arguing for its multi-pillar model, DC plans appear more appropriate to the economic situation in emerging markets. Above all, their simplicity and portability are of appeal.

Pension Asset Projections

Chart 6 Pension asset development in Asia and CEE [€ bn]



Source: Allianz Dresdner Economic Research / Allianz Global Investors. Population size of the Asian emerging markets stands at 2.6 billion, while 107 million people live in CEE.

With their move towards fully funded pensions, reforms in Asia and CEE will obviously boost the accumulation of pension assets in the years and decades to come. Projections by Allianz Dresdner Economic Research / Allianz Global Investors quantify the impact of these developments. Based on current data on population, workforce, income, pension scheme participation rates and the likely development of these indicators in the future, it is expected that pension assets in CEE will grow from today's EUR 50.8 billion to EUR 244.9 billion in 2015. This corresponds to a compound

annual growth rate of 19.1%. The pension assets in Asian emerging economies are likely to grow from their current EUR 251.9 billion to EUR 1,049.3 billion in 2015, a compound annual growth rate of 17.2%.⁸ (Chart 6)

This massive capital build-up indicates the degree to which citizens in these two regions will be exposed to capital market developments. Investment behaviour and asset allocation will be crucial to ensure an appropriate living standard after retirement.

⁸ Numbers for CEE include assets in the mandatory second pillar pension funds as well as assets in the voluntary pension funds (the tax-favoured third pillar in CEE). In Asia, occupational assets are included and voluntary individual retirement savings for India, Singapore, South Korea and Thailand. Details in Allianz Global Investors (2007a, b).

Challenges in DC Plans

These developments imply new challenges for pension plan members, sponsors, regulators, asset managers and insurance companies. The main question is how to handle risks in DC plans, especially investment risk. In systems with the possibility of choice, there is a need for risk management on an individual level through sensible investment choices. In all systems, the government intervenes substantially through regulation and this influences the directions of investment policy and asset allocation. Politics has several means to

influence the behaviour of those who manage pension assets, and it can also influence the capacity of plan members to make appropriate choices through financial education and the establishment of an investment culture. In addition, the design of pension plans can influence the behaviour of plan members and asset managers. In voluntary plans, plan design is a crucial factor for the incentives of an individual to join, and in all plans the design of the default option is critical for those who are unwilling or unable to make an active choice. (Table 2)

Challenge I: Financial Education

Lack of financial literacy is a problem all over the world. Survey research indicates that many people have problems understanding even basic financial concepts. For example, in one of the arguably most developed financial markets, the US, one third of participants in a study could not correctly answer an easy question regarding compound interest. Only slightly more than 50% of participants understood that holding a single equity is more risky than an equity fund (Lusardi, Mitchell 2006). In Japan, 71% of people surveyed had no knowledge about investments in equities and bonds (OECD 2005).

This problem is likely to be more severe in countries with a short history of capital market development and a population with limited experience of financial markets and instruments. For example, in India more than 50% of survey participants did not have a clear understanding of the concept of inflation (Bhushan 2006). A lack of financial education can harm the sufficiency of retirement savings in DC plans as systematic investment errors accumulate over a long time. Participants are directly exposed to risk and responsible for their own risk management within the limits set by regulation. The neces-

Table 2 Key factors influencing DC pension plans

Plan member / investment choice	Financial education / investment culture	Plan design
Asset manager / investment strategy	Investment regulation Guarantee requirements Range of permitted asset classes and products	Design of default option

sity of improving financial literacy not only applies to pension plan participants, but also to pension plan trustees, who play a crucial role in plans without individual choice.

This has two implications. The first is that financial literacy and advice need to be increased. The OECD has called on governments to provide financial education already at school. It demands that these programs

should especially focus on crucial planning decisions such as pensions, and that generally financial knowledge should be promoted (OECD 2005). However, the state cannot single-handedly improve financial education. Other stakeholders, such as financial institutions, employers, trade unions or consumer groups, need to join forces to achieve a satisfactory level of financial education.

Challenge II: Plan design

Important as it is, financial education can only deliver significant results in the medium- and long-term. An immediate way to mitigate possible detrimental effects of modest financial education is offered by a relatively new line of research: behavioural economics and finance. The main tenet of this research is that individuals do not always behave rationally, especially not in financial matters, but are subject to various psychological and behavioural biases that influence their saving and investment decisions.

Among them and of special significance for DC and long-term savings are: problems of self-control, framing effects (i.e., choices are influenced by how they are presented), lack of firm preferences, inertia, reliance on past asset performance, overweighting of loss avoidance and overconfidence in own capabilities (Mitchell, Utkus 2006). These psychological biases apply to the decision to save as well as to subsequent investment choices, often resulting in insufficient retirement savings and/or sub-optimal asset performance.

However, there is no need to simply accept these findings as unchangeable parts of human nature. It is possible to design pension plans to counteract these tenden-

cies. There are several options to achieve this, but two main rules have materialised:

- First, in order to ensure a higher participation rate in voluntary occupational plans, automatic enrolment can be introduced. This means employees have to make an explicit decision to opt out of the plan instead of making a decision to opt in. Empirical research has shown that participation rates increase substantially under this regime (Benartzi, Thaler 2006).
- Coupled with that, there should be an appropriate default choice in the DC plan for members unwilling or unable to make a choice. For the others, the menu of choice should not be too large as choice overload and complexity reduces plan participation and the willingness to make investment choices at all.

The last point is highly relevant for mandatory plans with individual investment choices; here choice overload cannot result in decreasing plan participation, but it can result in overreliance on the default option. For example, in the mandatory Swedish individual account system, the Premium Pension, members can choose among more than 700 funds and can do so at certain in-

tervals. In the 2005 round of selection, less than 10% of members made an active choice. The others were enrolled in the default fund. Choice overload is key to an explanation (Sundén 2006). Consequently, the design of the default option is crucial.

Asset managers can help to design suitable default solutions, but that is not all. Financial decisions regarding retirement and long-term savings belong to the most essential financial decisions in life, but also to the most complex. Consumers and trustees need tailored advice and suitable and transparent products that match their risk profiles and general preferences. In this sense, the financial industry needs to con-

tribute to the success of the new pension schemes by helping consumers make the right decisions. They also need to develop products tailored to the demand structures of individual countries. These can differ strongly from country to country, for example, in terms of investment culture.

In all, there are ways to control the risks inherent in DC plans, but plan design must be appropriately calibrated to protect plan members from making sub-optimal choices. Financial education must be promoted to enable plan members to responsibly look after their retirement saving decisions as well as other financial decisions.

Challenge III: Regulating DC Plans

At first glance, it seems easier to regulate DC plans than DB plans. After all, there are no liabilities to match, DC plans by definition cannot be under-funded and no discount rates need to be determined. Nevertheless, DC plans have different regulatory challenges. On the one hand, implementation of the above mentioned design features requires that they be permitted by law. For example, while choice overload is a serious problem, no choice is probably even more problematic.

If there is only one fund for all members, they cannot match their investment to their risk preferences or to personal situations like age. Consequently, a one-size-fits-all investment strategy is likely to be suboptimal for many members. For example, according to capital market theory, young employees should invest a substantial share in high yield, but risky assets, as short-term financial market swings would not affect them. If the pension fund is invested conservatively

throughout their career, they will face the danger of insufficient retirement savings. In turn, insufficient retirement savings imply that the government will have to take care of these future retirees. Besides that, some freedom of choice makes pension benefits more tangible and may lead to a heightened general interest in financial matters. Despite these arguments, countries like Bulgaria, China, Croatia, Romania or Taiwan do not foresee any choice in their DC pension plans.

Investment Regulation

Another major regulatory challenge concerns investment regulation of pension funds. There are two main principles of regulating pension funds, the prudent person principle and quantitative restrictions. The prudent person principle applies in Anglo-Saxon countries and, increasingly, in Western Europe. It is the most liberal form of investment regulation and is based on the premise that pension funds or asset managers are obliged to invest in the same way as prudent

investors would do for themselves, particularly with regard to diversifying assets. In this sense, the prudent person rule targets the behaviour of asset managers and the decision-making process and not the actual investment decisions. On the other hand, quantitative restrictions specify the financial instruments that pension funds can invest in as well as the maximum limits of certain asset classes in the portfolio.

Asian and CEE countries have opted for quantitative restrictions as a means of regulating pension funds. In most countries, there are limits for equity holdings and other financial instruments, as well as for the share of foreign assets in the portfolio. From the viewpoint of capital market theory, these limits are not without problems. It is argued that restrictive maximum limits for certain financial instruments, especially equity, render pension funds inflexible by constraining asset allocation and thus the upside potential of pension funds.

If equity limits are overly restrictive, they may result in suboptimal asset performance because pension funds cannot sufficiently take advantage of the higher-yielding equity markets. Research on the U.S. financial markets shows that in the period between 1928 and 2006 stocks outperformed bonds by 6.6 percentage points, in the period between 1966 and 2006 by 4.1 percentage points and in the period between 1996 and 2006 by 5.1 percentage points (Damodaran 2008). Caps on international investment can hinder effective asset allocation by impeding an appropriate diversification across countries. In the case of restrictive regulations, asset performance is dependent on domestic markets and economic cycles, resulting in investment risk higher than it needs to be.

Nevertheless, especially for emerging markets, there are some arguments in favour of quantitative restrictions. These include volatile markets, inexperienced regulators, limited internal controls and weak governance structures (Davis 2002). More important still is a trade-off for policy-makers between the objective of local capital market development and optimal asset allocation of pension funds. It was hoped that the funded pension system would lead to quantitative and qualitative capital market development. Qualitative improvements refer to the generation of “institutional capital”, which includes better legal and regulatory frameworks and more professional investment management, more transparency and better governance structures. To achieve these goals, pension assets should, to a certain degree, flow into national financial markets. However, substantial inflows of pension assets may result in imbalances between supply and demand, particularly when local capital markets lack liquidity, which could lead to distortions in asset pricing. Hence, the trade-off between the desire to develop local capital markets and efficient pension fund investing is a delicate matter and policy-makers need to strike a balance.

Guarantees

Minimum return guarantees are another regulatory instrument often applied. Seven of the eleven CEE countries apply minimum guarantees. Minimum return guarantees can take the form of absolute guarantees. This has been the case in the Czech Republic, where pension funds have to generate positive returns every year. In Taiwan, pension funds have to meet the two-year bank deposit rate. In Poland, Bulgaria, Croatia, Slovakia and Slovenia, guarantees take the shape of relative performance goals where a benchmark, based on the performance of all pension funds, must be met. For pension fund

members, absolute return guarantees have the advantage that retirement savings are predictable. In the case of relative return guarantees, the risk of choosing a poorly performing fund is minimised.

As a result, in some regards, retirement planning is becoming easier. Nevertheless, there is a trade-off. Capital market theory argues that the necessity to secure short-term profitability may lead to homogeneous investment strategies in the pension fund market. This “herding” effect may result in similar performance by pension funds, which reduces the number of real choices for potential and existing pension fund members.

Conclusions

Pension system reforms in the emerging markets of Asia and CEE have been fundamental and far-reaching. While CEE countries had to reform their state-centred pension system inherited from socialist times, the Asian countries had to establish and expand their pension systems. Nevertheless, both regions have ended up with similar systems, at least regarding occupational pensions, namely fully funded DC systems with individual accounts. In the context of emerging economies, the flexibility and transparency of DC plans was key for the decision. The broad design of the pension system is converging towards the World Bank model. This development fuels an impressive build up of assets. The combined pension assets of Asia and CEE are likely to more than quadruple between now and 2015.

To ensure that these assets will provide retirement security through sufficient accu-

A second related problem is that effective longer-term investment strategies cannot be pursued if the guarantee applies to annual minimum returns. In this case, pension funds must sacrifice long-term returns for short-term profitability. In brief, quantitative restrictions and annual minimum guarantees are somewhat problematic. Both limit the holdings of volatile assets, including equities, which have higher long-term returns, but can have negative returns in individual years. Their existence can be justified by the current modest level of financial market development. However, a good case exists for restrictions to be eased as investor experience and institutions develop.

mulation of wealth, action on several fronts is required. Financial education needs to be improved, the design of pension plans needs to take behavioural dispositions of members into account, asset managers need to provide transparent products and give sound advice, while regulation should not overly restrict investment opportunities or encourage suboptimal investment strategies on the part of pension funds.

By introducing a strong funded pillar, governments in Asia and CEE are following a reform path that promises to generate sustainable pension systems. Now that a solid foundation is in place, the fine-tuning of the parameters of the system becomes the major task. It is of utmost importance that the DC systems function properly as, within a few years, the living standards of a significant and growing part of the population will depend on the capital they generate.

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Appendix

GDP per head and GDP growth

* average GDP growth 2001-2006 ** estimated

	GDP/head [€]	Δ GDP 2001-06*	Δ GDP 2007-12*
Bulgaria	3,790	5.1	4.4
China	1,690	9.8	9.0
Croatia	8,400	4.6	3.8
Czech Republic	12,440	4.3	4.3
Estonia	11,230	8.0	5.8
Hong Kong	18,990	4.7	5.0
Hungary	10,200	3.8	3.1
India	701	7.4	8.1
Latvia	8,520	7.7	5.5
Lithuania	8,170	7.4	5.5
Poland	8,080	3.4	4.4
Romania	5,500	5.6	4.8
Singapore	22,580	4.0	5.6
Slovakia	10,100	4.0	4.8
Slovenia	16,400	3.6	3.6
South Korea	14,840	4.6	4.6
Taiwan	12,040	3.2	4.1
Thailand	2,680	5.1	4.9

Source: Allianz Dresdner
Economic Research

Old-age dependency ratios in CEE and Asia

	2005	2050
Bulgaria	25	61
China	11	39
Croatia	26	50
Czech Republic	20	55
Estonia	24	43
Hong Kong	16	58
Hungary	23	48
India	8	21
Latvia	23	44
Lithuania	23	45
Poland	19	51
Romania	22	50
Singapore	12	59
Slovakia	16	51
Slovenia	22	56
South Korea	13	64
Taiwan	13	63
Thailand	11	38

DC schemes in Asia and CEE

	Introduced	Type
Bulgaria	2002	Mandatory DC
China		
1B pillar	1997	Mandatory DC
EA	2004	Voluntary DC
Croatia	2002	Mandatory DC
Czech Republic	1994	Voluntary private DC
Estonia	2002	Mandatory DC
Hong Kong	2000	Mandatory DC
Hungary	1998	Mandatory DC
India	2004	Mandatory DC
Latvia	2001	Mandatory DC
Lithuania	2004	Voluntary DC
Poland	1999	Mandatory DC
Romania	2007	Mandatory DC
Singapore	1955	Mandatory DC
Slovakia	2005	Mandatory DC
Slovenia	1992	Voluntary DC
South Korea	2005	Voluntary DC/DB
Taiwan	2005	Mandatory DC
Thailand	planned	Mandatory DC

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