



## Emerging Asia's middle class

A force to be reckoned with

August 21, 2009

**Looking into Asia's middle class is important for a number of reasons.**

The emergence of a large and dynamic middle class raises Asia's profile as an attractive market destination for products ranging from consumer goods to financial services. There are even hopes that the Asian consumer will replace the US as "world consumer of last resort", although this seems unlikely in the foreseeable future.

**The growth of the middle class over the past decade has been quite noticeable in some Asian countries.** In China for example, the percentage of rural households with annual net per capita income above RMB 5,000 (USD 735) was only 2% in 1995, but rose to 24% in 2006. The middle class can contribute to higher and more sustainable economic growth as it goes together with lower inequality and is supportive of larger domestic demand. In addition, the middle class plays an important role in the political dynamics of the region.

**"Middle class" is a widely accepted concept but tricky to measure.**

While the term "middle class" appears easy to grasp, quantifying its size is a difficult task. In this overview report as well as in the forthcoming country-specific notes, we define the middle class based on the local context of the countries under discussion. In China for example, the middle class is defined as households with per capita disposable income between USD 1,300 and USD 2,400. In terms of durable goods typically associated with the middle class, 6% of urban households in China own a car, 54% own a computer, 97% own a washing machine, and every household has more than one mobile phone and colour TV set.

**Despite a favourable outlook for Asia's middle class, the global crisis poses challenges.** Lower economic growth – and even recession in some countries – will result in job cuts and rising unemployment. Household wealth will be adversely affected by asset market corrections. In the medium run, fiscal pressures arising from current stimulus packages could lead to higher taxes and poor provision of public services, which would likely impact the middle class disproportionately.

**Active policies may be necessary to protect the middle class from being eroded.** Governments should thus focus on continued improvements in education, health, other well-targeted public services provision and cash transfers, with the aim of improving the quality of human capital and raising disposable income.

[www.dbresearch.com](http://www.dbresearch.com)

**Authors**

Steffen Dyck  
+49 69 910-31753  
steffen.dyck@db.com

Syetarn Hansakul  
+65 6423-8057  
syetarn.hansakul@db.com

Rachna Saxena  
+44 207 547-6258  
rachna.saxena@db.com

**Editor**

Maria Laura Lanzeni

**Technical Assistant**

Bettina Giesel

Deutsche Bank Research  
Frankfurt am Main  
Germany

**Internet:** [www.dbresearch.com](http://www.dbresearch.com)

**E-mail:** [marketing.dbr@db.com](mailto:marketing.dbr@db.com)

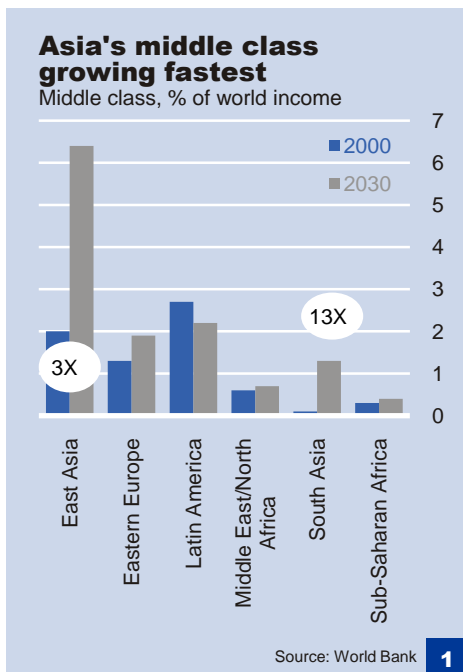
**Fax:** +49 69 910-31877

**Managing Director**

Norbert Walter



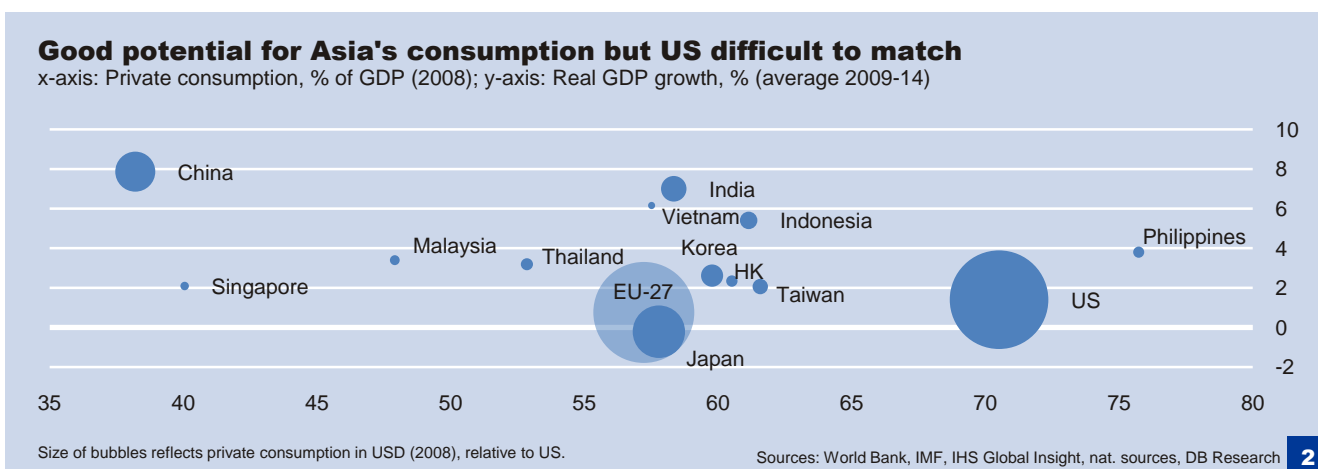
## Asia's rising middle class: A force to be reckoned with



Asia's middle class is one of the fastest growing population groups in the world. According to the World Bank, the middle class of South and East Asia accounted for 1.4% of the global population and 2.1% of global income in 2000. By 2030, the World Bank forecasts that this same group will account for 8.9% of the population and 7.7% of global income – much higher than the middle class growth in other developing regions (chart 1). There are two reasons for Asia's better prospects. One: faster population growth in *South Asia* means that these countries' middle classes are growing more quickly. Two: although the population in *East Asia* is growing more slowly than in other regions, its annual per capita income growth is much higher (almost twice that in Sub-Saharan Africa) so it will still increase its share of global income in that time frame.<sup>1</sup> The burgeoning of Asia's middle class makes it an important consumer market, an engine of economic growth in the region, and an important global political force.

### A growing consumer market

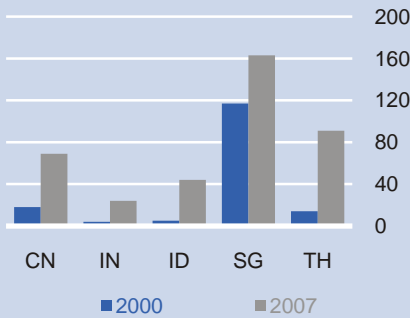
The potential of Asian (especially Chinese) consumers to take up the mantle from the US as "world consumer of last resort" has captured the imagination of many observers in recent months. For that to happen, the surge of the middle class would be a key ingredient. Current projections, alas, show that it will likely take a long time for emerging Asia to match the US's consumption prowess (see chart 2). Nevertheless, the emergence of a large and dynamic middle class raises Asia's profile as an attractive market destination in its own right. It heralds a rise in earnings and disposable income (defined as post-tax income available for spending and saving). Studies demonstrate that as income increases, a smaller percentage of it is spent on necessities such as food and more is spent on optional items.<sup>2</sup> Thus, it is evident that in comparison to lower-income households, the middle class has a greater amount of discretionary income (i.e. income available after taxes and essentials such as food and shelter are taken care of) to use and it will be more diversified in its consumption choices.



<sup>1</sup> World Bank (2007). The model takes into account income distribution factors.  
<sup>2</sup> Banerjee and Duflo (2008).

### Middle class drives growth in consumer goods

Fixed line and mobile phone subscribers, per 100 people

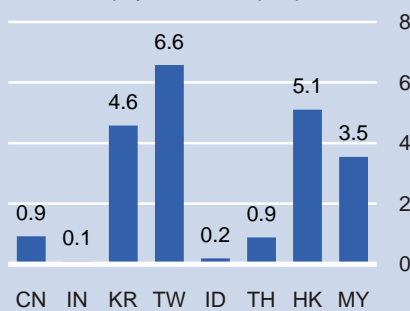


Source: World Bank WDI **3**

For essential purchases such as food, middle class consumers may tend to switch consumption to more expensive, better tasting foods or spend more time eating out.<sup>3</sup> In addition, this demographic group will spend a larger percentage of their income on non-essential categories. In a study of 13 developing countries (including India and Indonesia) by Banerjee and Duflo (2008) about the middle class and consumption, they found that the share of expenditure devoted to entertainment went from virtually zero for the very poor to 1-5% of total income for those in the next income group which had per capita expenditure of USD 6-8 per day. This trend continued at the different income levels.<sup>4</sup> Similar results can also be found for consumption on alcohol, healthcare, household goods and infrastructure (such as utilities). This can help explain the boom in consumer products such as televisions and mobile phones throughout Asia (see chart 3). As income levels continue to rise, the middle class not only diversifies its spending but also increasingly demands more quality and innovation in the goods that it purchases. This drives competition amongst suppliers and the opportunity to target goods to specific niches of consumers.

### Catch-up potential in card penetration

Number of payment cards per person



Source: Mastercard Advisors **4**

Along with demand for traditional consumer products, the demand for a variety of financial services increases in many countries as the middle class expands. In many Asian nations, there is evidence of an increased reliance on credit (in particular personal credit cards) to finance expenditures. In countries such as Malaysia and Singapore which already boast more than one credit card per person, this simply means additional or supplementary credit cards in a household while in other places such as India this entails capturing first time users (see chart 4). There is also evidence of increased lending for personal mortgages in some countries. For instance, in India, the amount of mortgage loans outstanding grew over 25% between 2006 and 2007 and over 12% between 2007 and 2008. More sophisticated financial services, such as investment advice or trust & estates preparation, have generally been geared towards the high-net-worth segments of the population. However, this trend is also shifting and these products are being increasingly marketed to the middle class populations in the region.

### The middle class supports a more sustainable growth model

One way in which the middle class could lead to more sustainable growth is through the reduction of inequality. The link between inequality and growth can be controversial. Several studies have attempted to demonstrate that high levels of inequality – such as land inequality or income inequality (whether measured by the Gini coefficient or another measure such as quintiles) – is negatively correlated with economic growth.<sup>5</sup> Following this research, Easterly<sup>6</sup> developed a model that showed that a middle class consensus (defined as a national situation where there are neither strong class differences nor strong ethnic differences) results in higher levels of income and growth. These studies support the idea that a middle class reduces inequalities in an economy and can contribute directly to growth. On the other side of the debate, it can be argued that economic growth and the reduction of inequality is what creates the middle class in the first place. While we do not take a specific stance

<sup>3</sup> Senauer and Goetz (2003).  
<sup>4</sup> Banerjee and Duflo (2008).  
<sup>5</sup> Alesina and Rodrik (1994).  
<sup>6</sup> Easterly (2000).

on which input comes first, it is important to note in any discussion of the middle class that there is a wide range of existing literature that seeks to prove the benefit of a middle class on improving economic growth.

### **Middle class fosters domestic-demand based growth**

Beyond the bridging effect of the middle class, it also contributes to growth directly by driving domestic demand. The current global recession and its effects on the Asian economies have made it clear that the region has not “decoupled” from dependence on external demand and exports. However, as the middle class grows and income levels climb, domestic demand for goods can also rise independently from the international cycle and thus contribute to economic growth. In addition, the middle class’ search for quality goods requires investment into production and marketing functions in the economy which then spreads the wealth. Parents in the middle class also tend to have fewer children and to spend more on education and health for themselves and their children.<sup>7</sup> Although this may require more savings at the household level, it requires fewer social safety nets and subsidised assistance from the government. This then frees resources to be used for infrastructure and investing in the private sector. Furthermore, the emphasis on education (the World Bank estimates that the percentage of the middle class with less than a secondary education will decline from 47% in 2000 to 38% in 2030) builds up human capital, also contributing to sustainable growth.<sup>8</sup>

### **Middle class builds human capital**

#### **The middle class can be an important political force**

There are various debates regarding whether or not the rise of a middle class is essential for the process of democratisation and the upholding of democratic principles of a country. In a recent Pew Research Center study of 13 middle income nations (including India and Malaysia), the poll found that the middle class assigns more importance to democratic institutions such as honest elections, freedom of speech, and a strong judiciary than the poor. Economic well-being is linked to support for democracy.<sup>9</sup> However, other experts argue that the poor are equally supportive of democracy or may be the more important demographic group for creating a democracy within a country.<sup>10</sup> We believe that the middle class certainly has strong potential for shaping the political agenda.

### **Middle class more likely to focus on consumer rights and private property protection**

The middle class often has a separate set of priorities from the poor (especially the agricultural poor) as well as the rich (especially the business elite). It represents a distinct political group that can shape economic and social policies in a nation. The middle class is more likely to focus its goals on consumer rights and private property (i.e. to overcome feudalistic structures) than the poor (who are more often concerned with basic services and needs) and the wealthy (who are more concerned with policies that can protect their money, land and social position).

In Asia, the impact of the middle class on the political environment as well as the political participation of the middle class vary greatly from country to country. They can provide a source of stability for the government or the impetus for change. Members in countries such as India use the political system to voice their opinions and enact change and thus reinforce the rule of law. In other countries, the

<sup>7</sup> Banerjee and Duflo (2008).

<sup>8</sup> World Bank (2007).

<sup>9</sup> Pew Research Center (2009).

<sup>10</sup> Krishna (2008).

middle class can go outside the established system to try and create change, as demonstrated by the political demonstrations in Thailand and South Korea.

While it is a generally accepted notion that the Asian middle class can be important for a variety of reasons, there is no universal definition of “the middle class” that quantifies the group and provides easy parameters for measuring its progress. The next section outlines the various definitions and methodologies used to measure the middle class.

## How to measure the middle class

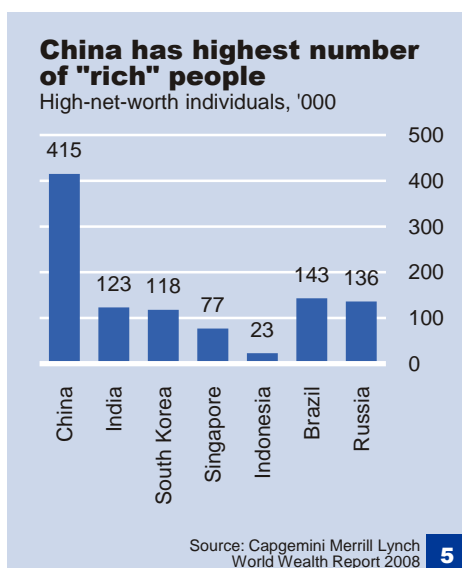
### What is a middle class?

According to various dictionaries, a middle class means “a class of people intermediate between the classes of higher and lower social rank or standing; the social, economic, cultural class, having approximately average status, income, education, tastes, and the like<sup>11</sup>” or “a social and economic class composed of those more prosperous than the poor, or lower class, and less wealthy than the upper class. Middle class is sometimes loosely used to refer to the bourgeoisie. In the United States and other industrial countries, the term is often applied to white-collar, as opposed to blue collar, workers.”<sup>12</sup>

Some define it as that group of people that are “neither wealthy nor poor”, forming the largest part of households and the backbone of economy and society – at least in advanced countries.<sup>13</sup> Often the middle class is commonly defined as those households that own 70% to 150% of household median net income of their respective countries.

### Who is rich and who is poor?

Since in universally accepted definitions, the middle class lies between the wealthy and the poor, it is thus helpful to find a common ground on how the wealthy and the poor are defined in different countries. Defining the wealthy appears to be an easier task. Capgemini and Merrill Lynch’s World Wealth Report 2008 defines a “high-net-worth individual” (HNWI) as an individual who holds at least USD 1 million in financial assets. Indeed the USD 1 million in financial assets is the commonly-accepted threshold among many international private banks for HNWI. In this regard, China’s HNWIs at 415,000 are the most numerous both when compared to other countries in Asia and among the other large emerging markets such as Brazil and Russia (see chart 5). However, when compared to the total population, the number of HNWI in China is very low, i.e. only 3 in a million and in India only 0.1 in a million, much lower than in the US where there are 100 HNWI in a million. Defining the poor is more difficult, however. According to the World Bank PovertyNet, the choice of a level where to draw the poverty line is ultimately arbitrary (see box). The key principle is to take into consideration the social norms or common understanding of what represents a “minimum”. In an international comparison, a frequently-used benchmark defines the poor as those



### Constructing a poverty line

Most commonly used is the cost-of-basic-needs approach. It estimates the cost of acquiring enough food for adequate nutrition – usually 2,100 calories per person per day – and then adds on the cost of other essentials such as clothing and shelter.

An absolute poverty line remains fixed over time – adjusted only for inflation – as in the United States. It allows to track the evolution of poverty over time, and is also useful when evaluating the effects of policies and programmes on the incidence of poverty. However, in most countries poverty lines are revised from time to time; they thus reflect the evolution of social consensus about what constitutes poverty.

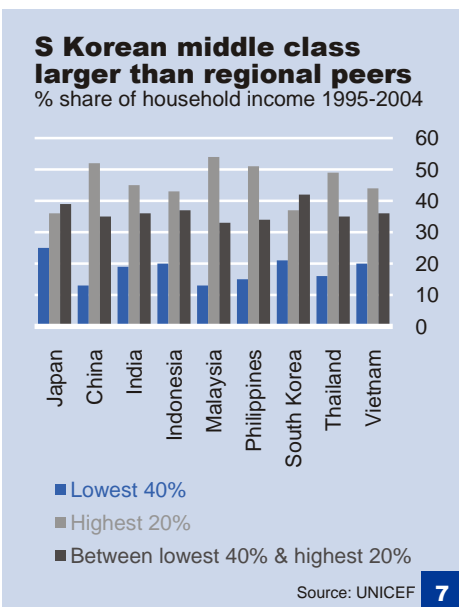
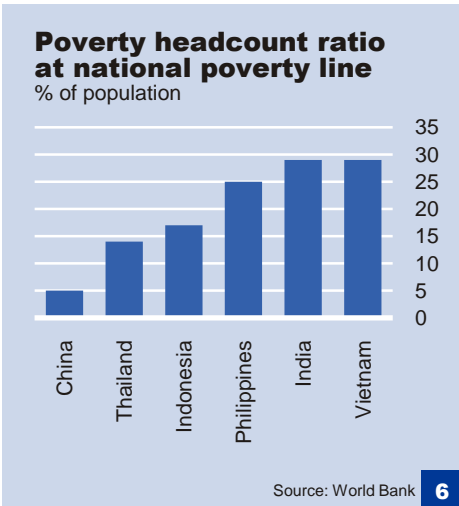
Subjective poverty lines are based on asking people what minimum income level is needed in order to just make ends meet.

Source: World Bank Poverty Manual, All, JH Revision of August 8, 2005, Chapter 3

<sup>11</sup> Webster’s Unabridged Dictionary, Random House Inc., 2006.

<sup>12</sup> The American Heritage New Dictionary of Cultural Literacy, Houghton Mifflin Company, 3<sup>rd</sup> ed., 2005.

<sup>13</sup> Birdsall et al. (2000), pp. 1 & 2f.



**Middle class affected via jobs, financial wealth and taxes**

who live on less than USD 1/day. Essentially, constructing a poverty line depends on the objective of the study or its use i.e. whether it will be used to measure policy effectiveness within a country (here a relative poverty line will suffice) or in the context of cross-country comparison (where an absolute measure such as the USD 1/day is helpful). Therefore, drawing a poverty line often varies from country to country and is very much a matter of judgement.

**Cross-country comparison vs local context**

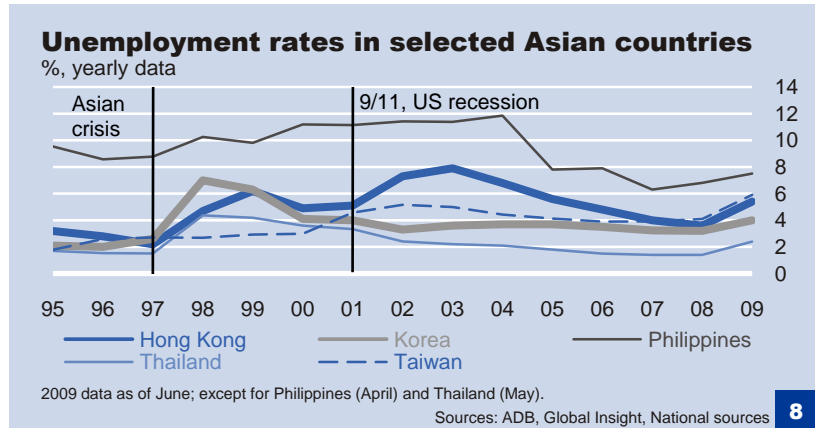
While the middle class is a widely accepted concept, drawing a strict line to define who qualifies to be in the middle class is difficult, even more so when the definition has to apply across countries. Among other things, data limitation and issues such as nominal exchange rate and purchasing power parity present challenges to having a single international level of income to define a global middle class. Furthermore, household surveys tend to follow different definitions and computation methods vary from country to country.

Taking these limitations into account, in our forthcoming articles on China and India we will define the term “middle class” based on the local context of the countries under discussion. Where possible, we will follow the country’s official definition of the middle class i.e. those households where the income falls between certain quintiles of income brackets defined as middle class (see chart 7). For example, China’s National Bureau of Statistics defines the urban middle class (2nd quintile to 4th quintile groups) as households with disposable per-capita income between RMB 8,900 (USD 1,300) to RMB 16,386 (USD 2,400). In India, according to the McKinsey Global Institute, a lower middle class household earns between USD 8,000 and 15,000 annually.<sup>14</sup>

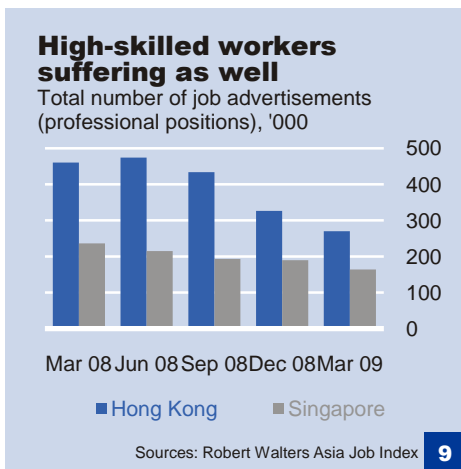
**How will the global crisis affect Asia’s middle class?**

We expect the global economic and financial crisis to impact emerging Asian economies via job losses, reductions in household financial wealth and potentially higher taxes in order to finance announced stimulus plans. It goes without saying that the impact of the crisis elsewhere will be much larger than for Asia’s middle class. Nonetheless, the expansion of the Asian middle class could be in peril if the region entered a period of prolonged recession or very weak economic growth. The medium- to long-term development will be closely tied to the country-specific patterns of demographic changes. Realised and planned reforms of social security and education systems play an important role as well.

<sup>14</sup> McKinsey Global Institute (2007)



8



9

## Global economic crisis triggers job losses

In Asia, low-skilled workers were affected first by the crisis as manufacturing and construction sectors slumped (reflected for instance by China's estimated 20 m jobless migrant workers). But white-collar jobs have not been spared. Service sectors, like trade-related and financial services, as well as real estate and logistics, have been deeply affected by the crisis. The same holds for research-intensive industries like information and telecommunication, as well as services outsourcing. In Hong Kong and Singapore demand for highly skilled personnel has been decreasing rapidly since mid-2008 (see chart 9) and in addition to private sector job cuts, there is evidence that the public sector is also cutting jobs: In late December 2008, the Korean government announced plans to cut 19,000 jobs at 69 public companies like for instance Korea Railroad. Even if unemployment rates for the middle class do not go up as rapidly as for blue-collar workers, wage growth will remain subdued in 2009-10, putting pressure on disposable income growth.



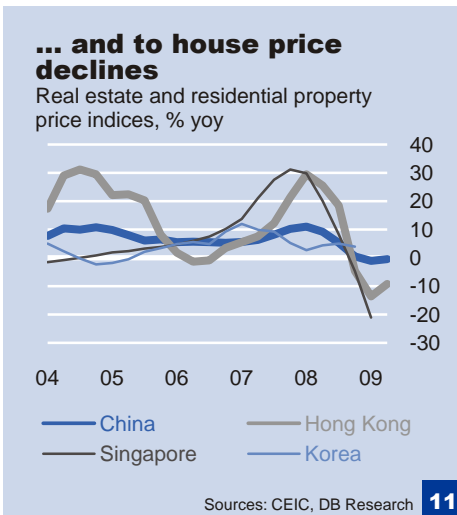
10

## Household wealth will be adversely affected by asset market corrections

During the ongoing global financial crisis, the MSCI Emerging Asia stock index fell 66% peak-to-trough (see chart 10). Unfortunately there are no easily comparable statistics on equity investment by Asian households. For instance, portfolio investment (which includes stocks and government bonds) accounted for 37% of Taiwanese households' gross financial assets and 28% of net assets in 2006, down from 43% and 31%, respectively, in 2002. In India mutual funds accounted for 7.7% of households' total financial assets in 2007/08, up sharply from only 1% in 2003/04. And according to a 2007 survey, 32% of Hong Kong's adult population were stock owners and 36% were stock investors, with the average investor earning HKD 22,000 a month.<sup>15</sup> Judging from local bourses' statistics, participation of domestic retail investors is relatively high in Korea (around 50% of trading value in 2008), and somewhat lower in Malaysia (41% of total trading value as of April 2009). In the case of Thailand local retail investors accounted for 54% of total turnover at the Stock Exchange of Thailand in 2008 and estimates for China put the share of retail investors at around 50-60%.

<sup>15</sup> Hong Kong Exchanges and Clearing Ltd. (2008), p. 5 ff.





Corrections in property markets are also likely to have a negative impact on middle class household wealth, although maybe to a lesser degree<sup>16</sup> since there is no evidence for house price bubbles in Asian countries<sup>17</sup> comparable to the ones in the US or other developed markets. Having said that, housing markets in specific cities or areas, or certain real estate market segments did show bubble-like price developments over the past couple of years and residential property indices have already reversed their upward trend in some countries like Hong Kong, Singapore, Korea, and China, with house price growth slowing sharply (see chart). In a recent paper the Asian Development Bank (ADB) estimates that financial wealth losses from the global financial crisis amounted to more than USD 9 trillion in 2008 in emerging Asia<sup>18</sup>, equivalent to just over 100% of GDP.

Financing of the announced fiscal stimulus plans could lead to a larger tax burden – especially for the middle class. Almost all countries in emerging Asia announced fiscal stimulus packages to counter slowing economic growth.<sup>19</sup> While size and scope vary across countries, so do available resources and fiscal positions. In any case, increased fiscal spending in 2009-10 probably means higher taxes in the future, especially for income earners from the middle class. In many countries the middle class presumably constitutes the largest “taxable” group, since the poor usually fall below the minimum taxable income and the rich account for a small fraction only. A rising tax burden lowers disposable income, thus limiting spending power. Also, lowering tax exemption limits could prevent people from entering the middle class by “taxing away” their discretionary spending power.

### Erosion of the middle class has to be prevented

Compared to other emerging markets regions Non-Japan Asia is expected to post higher growth rates as structural growth drivers like demographics<sup>20</sup>, education, openness etc. support the medium- to long-term growth outlook. While this should in general also support the growth of the region’s middle class its expansion may be jeopardised if the global crisis leads to permanent cuts in education and healthcare expenditure.

In the more developed economies in non-Japan Asia, like for instance Singapore and Taiwan, there are signs of widening income gaps.<sup>21</sup> It is difficult to clearly identify the reasons for this development – explanations range from globalisation to technological progress. A look at experiences in industrial countries can be illustrative since some of the observed trends are similar, such as declining real incomes or increasing income stratification.

Studies for the US show that over the past few years household wealth gains have mainly accrued to the wealthiest 20% of the population. Indebtedness of the middle class has drastically increased<sup>22</sup>, while real incomes of middle class families have

<sup>16</sup> See James et al. (2008), pp. 40-42.

<sup>17</sup> Glindro et al. (2008), p. 2.

<sup>18</sup> ADB (2009), p. 20.

<sup>19</sup> See Lanzeni and Valles (2009).

<sup>20</sup> Demographic dynamics are not uniform across Emerging Asia. The phenomenon of rapidly ageing societies (due to rising longevity and/or falling fertility rates) is most pronounced in Korea, Singapore, Hong Kong, Thailand, and Malaysia (countries with already relatively high per capita GDP) as well as China.

<sup>21</sup> See, for instance, Meer and Adams (2006).

<sup>22</sup> See Wolff (2007).

declined by almost 3% on average between 2000 and 2005. At the same time expenses for health insurance and education have risen in real terms, putting additional pressure on the middle class. Similar findings apply to Germany, where the population share of the middle class has declined markedly, dropping to 54% in 2007 from 62% in 2000.<sup>23</sup> Furthermore, the stratification of income has changed, with the average income earners (the group within the middle class with an income of 90% to 110% of the median) suffering “the most severe losses”<sup>24</sup> as a period of relatively weak growth coincided with labour market reforms. Asian governments can draw conclusions from these experiences. Their focus should be on continued improvements in education, well-targeted public services provision and cash transfers, especially to those members at the lower edge of the middle class. This should help to improve the quality of human capital, raise disposable income, and reduce risks of financial insecurity.

Steffen Dyck (+49 69 910-31753, [steffen.dyck@db.com](mailto:steffen.dyck@db.com))

Syetarn Hansakul (+65 6423-8057, [syetarn.hansakul@db.com](mailto:syetarn.hansakul@db.com))

Rachna Saxena (+44 207 547-6258, [rachna.saxena@db.com](mailto:rachna.saxena@db.com))

---

<sup>23</sup> See Grabka and Frick (2008).

<sup>24</sup> *Ibid.*, p. 22.

## Literature

- ADB (2009). Global Financial Turmoil and Emerging Market Economies: Major Contagion and a Shocking Loss of Wealth?
- Alesina, Alberto and Dani Rodrik (1994). Distributive Politics and Economic Growth. In *Quarterly Journal of Economics*, Vol. 109(2), May 1994, pp. 465-90.
- Banerjee, Abhijit and Esther Duflo (2008). What is Middle Class about the Middle Classes Around the World? In *Journal of Economic Perspectives*, Vol. 22, No. 2, Spring 2008, pp. 3-28.
- Birdsall, Nancy, Carol Graham and Stefano Pettinato (2000). Stuck in The Tunnel: Is Globalization Muddling The Middle Class? Working Paper No. 14, Center on Social and Economic Dynamics. August 2000.
- Easterly, William (2000). The Middle Class Consensus and Economic Development. The World Bank Development Research Group.
- Glindro, Eloisa T., Tientip Subhanij, Jessica Szeto and Haibin Zhu (2008). Determinants of House Prices in Nine Asia-Pacific Economies. BIS Working Papers, No. 263.
- Grabka, Markus M. and Joachim R. Frick (2008). The Shrinking German Middle Class – Signs of Long-Term Polarization in Disposable Income? In *Weekly Report*, No. 4/2008, Vol. 4, May 26, 2008, German Institute for Economic Research, Berlin, pp. 21-27.
- Hong Kong Exchanges and Clearing Ltd. (2008). Retail Investor Survey 2007. June 2008.
- James, William E., Donghyun Park, Shikha Jha, Juthathip Jongwanich, Akiko Terada-Hagiwara and Lea Sumulong (2008). The US Financial Crisis, Global Financial Turmoil, and Developing Asia: Is the Era of High Growth at an End? ADB Economics Working Paper, No. 139. December 2008.
- Krishna, Anirudh (2008). Poverty, Participation, and Democracy: a Global Perspective. Cambridge University Press.
- Lanzeni, Maria Laura and Veronica Vallés (2009). EM anti-crisis measures – separating the wheat from the chaff. Current Issues. Deutsche Bank Research. June 2009.
- McKinsey Global Institute (2007). The Bird of Gold: The Rise of India's Consumer Market.
- Meer, Craig and Jonathan Adams (2006). Specter of Inequality Haunts Taiwan. In *Far Eastern Economic Review*, 169 (10), December 2006, pp. 38-42.
- Milanovic, Branko and Shlomo Yitzhaki (2002). Decomposing World Income Distribution: Does the World have a Middle Class? In *Review of Income and Wealth*, Series 48, Number 2, June 2002, pp. 155-178.
- Pew Research Center (2009). The Global Middle Class: View on Democracy, Religion, Values, and Life Satisfaction in Emerging Nations.
- Senauer, Benjamin and Linde Goetz (2003). The Growing Middle Class in Developing Countries and the Market for High-Value Food Products. Working Paper 03-02, The Food Industry Center, University of Minnesota. March 2003.

Wolff, Edward N. (2007). Recent Trends in Household Wealth in the United States: Rising Debt and the Middle-Class Squeeze. Working Paper No. 502. June 2007. The Levy Economics Institute of Bard College.

World Bank (2007). Income Distribution, Inequality, and Those Left Behind. In *Global Economic Prospects 2007: Managing the Next Wave of Globalization*, pp. 67-100.

All our publications can be accessed, free of charge, on our website [www.dbresearch.com](http://www.dbresearch.com)  
You can also register there to receive our publications regularly by e-mail.

**Ordering address for the print version:**

Deutsche Bank Research  
Marketing  
60262 Frankfurt am Main  
Fax: +49 69 910-31877  
E-mail: [marketing.dbr@db.com](mailto:marketing.dbr@db.com)

© Copyright 2009. Deutsche Bank AG, DB Research, D-60262 Frankfurt am Main, Germany. All rights reserved. When quoting please cite "Deutsche Bank Research".

The above information does not constitute the provision of investment, legal or tax advice. Any views expressed reflect the current views of the author, which do not necessarily correspond to the opinions of Deutsche Bank AG or its affiliates. Opinions expressed may change without notice. Opinions expressed may differ from views set out in other documents, including research, published by Deutsche Bank. The above information is provided for informational purposes only and without any obligation, whether contractual or otherwise. No warranty or representation is made as to the correctness, completeness and accuracy of the information given or the assessments made.

In Germany this information is approved and/or communicated by Deutsche Bank AG Frankfurt, authorised by Bundesanstalt für Finanzdienstleistungsaufsicht. In the United Kingdom this information is approved and/or communicated by Deutsche Bank AG London, a member of the London Stock Exchange regulated by the Financial Services Authority for the conduct of investment business in the UK. This information is distributed in Hong Kong by Deutsche Bank AG, Hong Kong Branch, in Korea by Deutsche Securities Korea Co. and in Singapore by Deutsche Bank AG, Singapore Branch. In Japan this information is approved and/or distributed by Deutsche Securities Limited, Tokyo Branch. In Australia, retail clients should obtain a copy of a Product Disclosure Statement (PDS) relating to any financial product referred to in this report and consider the PDS before making any decision about whether to acquire the product.

Printed by: HST Offsetdruck Schadt & Tetzlaff GbR, Dieburg

ISSN Print: 1612-314X / ISSN Internet and e-mail: 1612-3158