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EDITORIAL

Welcome to the ASAF Electronic Journal.

It seems irreverent to wish everyone a happy new year with all the tragedy going on around us in Asia, but we hope that 2005 treats us all better.

The purpose of this publication is to bring to members of the individual analysts' societies within ASAF quality articles relating to the investment industry in general and to Asia in particular.

We are always looking out for articles for future newsletters and journals, so if you have any material which you would like published, then please let us know – you can reach the editors at rbunker@netvigator.com or deepak.gupta@amphenderson.co.nz.

Also, if you know of anyone with work they would like published, please encourage them to submit it. As you will see in this issue, we give full accreditation and links to the authors' websites, emails etc. Do please try and find articles – preferably ones which are of general interest to the investment business, or to Asia, rather than country-specific work.

Similarly, if you have any complaints, suggestions, criticisms, or anything that we can do to improve future Journals, then we would like to hear them.

Enjoy!

*Bob Bunker – HK Securities Institute
Deepak Gupta – NZ Society of Investment Analysts (joint Editors)*

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Indian Primary Market: Insatiable Demand

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The primary market in India has been agog with activity over the last year. Since the second half of 2003, the primary market as well as the secondary market have shown signs of revival. The primary market in particular has seen a flurry of activity with numerous high-ticket offerings coming into the market. What are the reasons for this frenzy and is it sustainable?

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2004 ASAF Tokyo Conference
“Asian Economies and Financial Markets”

- Independence and Interdependence -

19 October, 2004
Keynote Speech I “Prospect for Economic Growth in Asia”
(Summary)

SAKAKIBARA, Eisuke

Professor, Keio University

Let me today talk about Asian financial prospects from the perspective of Asian Economic Integration. There are two key factors in Asian Economic Integration. One is the creation of a production network or a supply chain network. The other is the emergence of a new middle class throughout Asia. I will touch on these key factors in due course. But let me first begin my speech by comparing Asian economic integration with European economic integration.

Regional integration can take many forms, and nowhere is this more evident than in the vastly different integration processes taking place in the regions of Europe and Asia. Integration in East Asia has progressed very slowly and is still in a relatively early stage despite the continuous process for decades. In fact, it could be said that the process of economic integration in East Asia began even as far back as the fifteenth century. Intra-Asian trade developed long before Europeans arrived in Asia, and in the beginning, its ships, the owners, merchants, and goods were all Asian.

In talking about today's Asian economic integration, it is extremely important to recognize this long historical development between the eighth and ninth centuries when Asia had been at the center of the world economy. If you include Islamic countries, Asia has dominated the world. Most of the consumption goods that were exported to Europe originated in Asia—Indian tea, Indian cotton, Chinese silk, Chinese ceramics, spices, and even Japanese lacquer wares. Angus Madison, who is an American historian and compiled the GDP statistics from around 1820, has concluded that as late as 1820, that is early nineteenth century, China had 27% and India had about 14% of the world GDP. At that time, the United Kingdom had only 4% of the world GDP. In as late as the early nineteenth century, China and India accounted for more than 40% of the world GDP, and in terms of the population, China and India accounted for more than 50%. It was only in the last one hundred fifty years or so that western economies have dominated the world economy. Asia had been at the center of the world economy for centuries, and this is something we need to recognize when we talk about Asia today. Asia had not been a developing part of the world, if you look back five hundred or six hundred years earlier, Europe was a developing part of the world. Not Asia, not Islam. And this historical perspective is very important.

When you talk about Asia today, China, India, which have declined dramatically from around the middle of the nineteenth century, or the late nineteenth century for about one hundred and some years, have awakened, and are beginning to come back to the world economy. But the reason why I talk about the history, which to some of you does not seem that relevant, is because that Asia, particularly countries like China and India, have positive legacies from its historical developments. They have various ports and key transportation infrastructure. And more importantly, it is the positive legacy in the human network—there are overseas Chinese

all around Asia, there are overseas Indians from Africa to Indonesia, and of course in Europe and the United States as well. Even in the Silicon Valley, which is said to be the center of the Information Technology revolution, Chinese and Indians are very conspicuous. So this overseas network of Asians, particularly Chinese and Indians, are extremely important when we talk about the Asian re-emergence into the world economy. And another thing is entrepreneurship, that many Chinese and Indian merchants, or managers, have had for centuries. Those positive legacies are here in Asia. And this is at the essence of the resurgence of Asia into the world economy.

Well, as compared to Asia, European economic integration has progressed steadily and has gradually deepened over the past fifty years to the advanced stage today with a common currency and well-developed institutions.

Thus, the speed of progress, progression and the level of integration attained in the two regions are quite different. In addition to these differences, the drivers behind the integration process in each region are different. In Europe, the origin of integration has been institutional in nature, and the development of the institutions has been prominent throughout the process. Thus, regional institutions have been the driving force behind integration in Europe. In East Asia, the development of regional institutions has also occurred. However, the progress in this area has been slow, and the few existing institutions have been fairly weak and ineffective. Nevertheless, regional integration is taking place in East Asia quite rapidly. But the driving force is the market, rather than the policy or the institution. Corporations, and their production networks they have established, are the driving force in integration of East Asia.

Since I'm talking about Asia, I will not go into details of what I call policy-driven or institution-driven integration of Europe, but let me briefly touch on it in terms of comparison. Institution building in Europe originated in the early 1950's with the creation of the European Coal and Steel Community by Jean Monet. And since then, key regional institutions, such as European Parliament, Council of European Union, European Commission, Court of Justice, and European Central Bank have been created to widen and deepen the integration process.

Although regional groups in East Asia are often referred to as regional institutions, they are in fact dissimilar in a number of ways from the institutions of the European Union. East Asia's regional institutions contain some member countries that are actually located outside East Asia. Examples are APEC, which include countries in North and South America, and the Asia-Europe meeting, which is, in reality, an intra-regional group comprising groups in Europe and Asia. In addition, unlike the European Union's institutions which exist within one regional group, and serve separately defined functions within the group, East Asia's institutions are separate groups of countries whose members often belonging to more than one group. In addition, these groups may have broadly similar goals and objectives, such as the reduction of tariffs for members, but they often have different agendas for achieving these goals, which can result in confusion and duplication of efforts among members and also present a non-unified face to the rest of the world.

By comparison, it is clear that Europe's decision-making process is firmly institutionalized. In other words, the process is set forth in its founding treaties and carried out by three main institutions: the European Parliament, the Council of the European Union, and the European Commission. In East Asia, there is a similar process called consensus decision-making. But

its uses are not stipulated in any authority or policy. It exists as a feature of Asian relationship culture. Consensus decision-making, along with the accommodation of the interest of others, along with the non-interference in the internal affairs of the neighboring nations is the basis for the concept called the “ASEAN way”, or “Asian way”. Although the “ASEAN way” or the “Asian way” has been credited with enhancing stability within the region, it has also been faulted for inhibiting, rather than promoting, economic cooperation within ASEAN, or within Asia.

Given the underdeveloped conditions of East Asia’s institutions, the region’s historical preference for maintaining national control and sovereignty, and the weak political will for making the tough political decisions necessary to advance regional cooperation, one could ask, whether regional integration is taking place at all in East Asia. And if it is taking place, what is driving it? Despite the weak institutionalization, regional integration is indeed proceeding in East Asia. It is driven by market forces. Europe is institutional-driven, policy-driven integration, Asian integration is market-driven integration.

In fact, the main driving force for regional economic integration in East Asia has been and continues to be the trade and foreign direct investment, carried out by multi-national corporations. And the consequent development of cross-border production networks. Our analysis reveals how the growth of the assembly trade, or trade in parts and components in the region is evidence of the growth of production networks and production sharing. It is also true that East Asia’s involvement in production sharing has promoted its regional integration, but not at the expense of its participation of global networks on a global scale. Europeans participate in it, and Americans participate in it although intra-regional trade has been increasing in an accelerated manner.

While the United States multi-national corporations were the initiators of multi-national production networks, multi-national corporations in Europe and in Japan quickly followed their lead. And multi-national corporations in Hong Kong, Singapore, Taiwan also became involved later on. Furthermore, China is playing an increasingly significant role in these networks.

The integration processes in Europe and East Asia developed on different paths. In Europe, the process was driven by governments and their policies, including the early creation of regional institutions, which strengthened over time to become a driving force for integration in their own right. In East Asia, where regional institutions are not well developed, integration has nevertheless progressed to a fairly high level, and the driving force behind it has been the markets, or more specifically, multinational corporations and their production networks. In recent years, parts and components have made up an increasingly large share of East Asia’s total manufacturing trade, indicating the region’s increasing involvement in production networks. As these production networks evolve and grow, they bind the countries involved in them into closer and closer cooperation, and when the countries in the network are located within the same region, the process leads to a deeper regional integration.

Two points that have important implications for the future of regional integration in East Asia can be drawn from my analysis. First, China’s role in regional production sharing has grown markedly in recent years. China has been described as a specialist in assembly trade, and its increasing of its imports of parts and components from its major East Asian partners is an indication of integration into the regional production network. These imports of parts and

components have increased dramatically during the course of the last few years. We usually have a perception that China is running a huge trade surplus. But as a matter of fact, the trade for the year 2004 up to now, China is in trade deficit; largely because of the imports of parts and components from Japan, from ASEAN countries, and from the rest of the world. Of course they still assemble the final products and export them to the rest of the world. But this pattern of trade involving China has changed quite dramatically during the course of the last few years, and this is going to continue.

Of course, key players in these production networks have been multinational corporations, and increasingly, Japanese multinational corporations have played a very significant role in creating production and supply-chain networks. One of the key factors in the recovery of Japanese manufacturing is the creation of this production and supply-chain network throughout Asia by the Japanese multinational corporations.

Five to six years ago, there was a fear of the hollowing out of the Japanese economy. However, I could say today that that fear does not exist, at least among major manufacturers in this country. China and Japan's relationship is complementary. We have benefited greatly from our trade, from our production outsourcing to China and by the creation of production and supply-chain network throughout Asia. China's role in these networks is not yet as prominent as Japan's role. But there is little doubt that China could expand and could approach the Japanese level during the next decade. So here, key elements are China's increasing involvement in this production network and Japanese multinational corporations.

Second, although we have emphasized the market-driven nature of East Asia's regional economic integration and the weakness of its institutions, it should not be assumed that regional governments and their policies played no role at all in the integration process. In fact, the increasing production-sharing of some countries, for example China and Singapore, was in part attributable to the policy directives of their governments. It could even be argued that the stage could be set to enhance the market-driven integration in East Asia by the policy actions of East Asian governments and regional institutions. Various networks of free-trade associations, FTA, and further cooperation within ASEAN+3 would particularly be important.

In this context, let me point out two key factors that could accelerate economic integration in East Asia. First, improved relationships and closer cooperation between China and Japan, particularly, the Chinese government and the Japanese government, are extremely important, since they are key central players in these production and supply chain networks that is rapidly developing in the area. Indeed, we have some negative historical legacies. But if France and Germany could form a strong alliance after two World Wars and after experiencing numerous regional struggles for centuries, why not China and Japan? Maybe the ball is in the Japanese government's court, and some positive action, on the part of the Japanese government is highly desired.

Second, there seems to be an emergence of a new middle class in Asia that would form the basis of new regional cooperation. I was talking about the supply-chain network, and the production chain network. But what is now becoming evident is that Asia is now becoming the base for the final demand and consumption. A new middle class is emerging in China. This middle class is somewhat greater than ten percent of the Chinese population. This ten percent of the Chinese population is the size of the entire Japanese population. With ten percent of the Chinese population quickly becoming a middle class, this creates another Japan in China. This is quite evident in anecdotal stories. Japanese cosmetics are selling very well.

When a Japanese supermarket goes into China, it is immediately swamped by the Chinese trying to shop there. This emergence of a Chinese middle class is a very important factor. It is not only in China, the same thing is happening in Korea and in Thailand. For example, Mr. Thaksin, the Thai Prime Minister, has emphasized the domestic demand. Asian countries, during the course of the past two decades or so, have depended on exports. The export to GDP ratio is in some countries as high as, or more than one hundred percent. When Mr. Thaksin took power, he emphasized the two-track policies, domestic demand plus exports. Of course, Thailand has continued to export, but he emphasized the agricultural community. He emphasized the need to enrich rural areas, thus promoting the expansion of the domestic demand. I think that to some extent, Mr. Thaksin has succeeded. The same thing is happening in Malaysia and with the election of a new president in Indonesia, Bambang Susilo Yudhoyono, I hope that Indonesia, the biggest country in ASEAN, will succeed in creating this middle class as well. One of the side effects of the new emergence of the middle class is a new process of democratization within the area. Succession was very smooth in Malaysia. Succession of the power in China was relatively smooth. The transfer of Mr. Jiang Zemin's power to Hu Jintao and Wen Jiabao was quite smooth. We have evidenced that during the course of the last one or two months. Look at the Indonesian election, and Mr. Yudhono, who did not have a strong party base, won overwhelmingly by the popular vote. I think that Asia has changed. A new middle class has emerged, and a new democratization is proceeding, at the same time.

Another aspect of the new middle class is a very interesting phenomenon that we can observe. Asians do have very similar taste and characteristics. In Japan right now, there is a Korean boom. A Korean television drama called, Sonata of Winter, has become extremely popular, and the Korean television, and movie actresses are extremely popular in Japan. Something like that would have never happened five years ago. The same thing could be said about the Japanese television dramas, Japanese animation, and Japanese pop music. The same thing could be said about the Hong Kong movies.

Asian middle class seems to have some kind of resonance, cultural resonance with each other, and seems to share relatively similar tastes for goods, for various software, music, movies, television, and animation. There is an emerging trend of new middle class consumption and final goods integration in this area. There are definitely some sort of common characteristics among Asian countries. In addition to the creation of a production and supply-chain network, there is a sort of networking of consumption and final demand. I think that it is extremely important to recognize that Asian integration is proceeding, driven by markets, driven by ordinary people. Political leaders are not necessarily effective in creating integration in this area. But the people and corporations are quickly moving into a somewhat integrated Asian economy. As I said, historically, Asia had been the center of the world economy. And gradually, the center of the world consumption, final demand would move from west to east. This is going to be a slow process, but I think that it is going to happen.

I do not know whether it is a good thing or not, but the Japanese savings rate has come down quite dramatically. I think that the savings rate for households this year is probably less than five percent. Chinese consumption is exploding. Asian consumption is exploding. It has a lot of problems, though. If Chinese—one point three billion in China, one billion in India—would start to consume like Europeans and Americans, there would be environmental problems. There would be energy problems, which are already happening. But I could not touch on that today. My time is limited. But this is a new phenomenon in world history. This

is probably the period which would transform the structure of the world economy in some fundamental way. What we are experiencing is something that could only happen in the time span of one hundred or two hundred years. And Asia is at the center of such movement. Well, I am supposed to leave twenty minutes for questions and answers, so I will end my speech at this point. Thank you very much.

(Applause)

Q: In Japan, the population is expected to decline. Now Professor Sakakibara, what do you think of the impact of the declining Japanese population on the economic and political situation in Asia?

A: Well it is not just in Japan that the population is declining. In Korea they are also experiencing a declining population and in China they are going to experience that, and in other developed countries, unless they have the large inflow of immigrants. So I think in order for Japan to solve the population problem, we need to introduce immigration. I am not really saying that we should open up our doors entirely, but to be selective, sort of flow of immigration and some form of limited nationalization, because if you look at the manufacturing industries and service industries, immigration is a must. For care of the elderly, and nursing care, I think Asian women could prove to be a very valuable sort of inflow. We should move towards a more liberal immigration policy. I know that it has some drawbacks - different cultures could cause problems in Japan, including crime. In the United States, for example, the Hispanic population is rising, and of the two hundred million in the United States, fifty million are said not to speak English at home. It could be a problem, but it must be taken as a fact that we will see a decline in population, because most women want to join the workforce, and if we cannot reverse that trend, then, we need to have some sort of cooperation with Asian countries in terms of population. In a positive way, we should accept a more liberalized immigration policy. Without that, I really have to forecast, Japan would really be affected because in one hundred years, the Japanese population would be less than half the current level, which is simply not viable economically.

Q: China seems to be hesitating to change to the floating exchange rate system of Yuan, and if that does not occur, then would not that have an impact on market-driven integration in Asia, and also why is China hesitating?

A: Well, people in the developed world want to regard China as a kind of developed country. But actually, in essence, China is still a developing country in terms of exchange rate, it has exchange control, which is like Japan in the nineteen fifties and nineteen sixties—very strict currency control and exchange control. And China cannot all at once liberalize the exchange controls because the financial system is very weak. There are four state-owned banks, including the Bank of China, and the best of the state-owned banks have an NPL ratio of more than fifteen percent. That is just according to official statistics, and we know that official statistics are always underestimated. If fifteen percent is a huge number, because NPLs of Japanese banks, which is said to be a problem, is at the level of about five percent. So the banking system in China is still very weak, and we cannot completely liberalize capital control under such conditions. Liberalization of the exchange control will still take five or ten years. There is no meaning in changing to the floating exchange rate system without liberalizing exchange controls. Also, I would like the people who are calling for a floating rate to watch the system more closely. The Chinese system is not a totally fixed exchange rate system. It is a crawling peg system, and the daily movement allowed is 0.3 percent. That is in ten days, they can move three percent. After having watched the financial crisis in Asia, China has adopted the policy of more fixed or a pegged system, pegged to the U.S. Dollar.

But if there is need, then China can move back to the crawling peg system without enactment of any kind. There is so much speculation. The time is not ripe yet for moving to a floating rate system. And also, at least as of this year, China's trade balance will be in deficit. I have never heard of revaluing a currency in a country with a trade deficit. There is capital inflow from overseas, so foreign currency reserves are improving. China is thinking about liberalizing capital outflow to create a reverse flow. In any case, there is almost no possibility for revaluation of the Yuan for the short term. In terms of six months to one year, I think the possibility is almost zero. Chinese authorities have been talking about a more flexible exchange rate and more flexible interest rate, and doing studies in order to have more flexible interest rate system. They are starting to study various systems and also considering at what timing to introduce these new systems.

Q: Please comment on the oil price situation and how do you think this will impact the Asian economies? How long do you think Asia will be able to cope with rising oil prices?

A: This is a very serious problem. I was in New York, in early October, and the consensus in New York is that this high oil price is going to continue. Three months or six months ago, consensus was that the demand and supply situation was such that the oil prices would eventually, fairly quickly, come down to thirty or thirty five dollars. Now, I think that the perception of the people, at least on Wall Street, has changed. They think that this forty to fifty dollar, and possibly above sixty dollar oil price is going to continue. There are a couple of factors. One of the reasons people thought prices would eventually come down, was that a substantial portion of the demand was speculative demand by hedge funds and others. However, buyers are not only short-term hedge fund, but the long-term pension funds. The hedge fund is a short term player, so when the prices start to come down in oil, they sold, but somebody bought that at that level. So there are real players, real long-term players, such as pension funds, who are buying. And second, the United States is the biggest consumer of oil, but the second biggest consumer of oil is China, and increasingly, countries like India, ASEAN countries, will demand much larger portion of oil. So this very resurgence of Asia, rapid growth of Asia, is affecting the oil market as well. And when it comes to the energy efficiency, Japanese are the best. Japanese are extremely efficient in the use of energy. But China is extremely inefficient. China's level of efficiency is one sixth of Japan's. In any case, if these high oil prices continue to prevail for the next six months or a year, that would probably have a dire impact on the economic performance of developed countries as well as Asia. I think people are a little too optimistic about this. Even Wall Street people now think that high oil prices are possible, that the negative impact of the high oil prices on the American economy is relatively small. I do not know why they say that. But it could be quite significant on the United States economy. What is supporting the United States economy at this moment is consumption. And, you know, gasoline prices do affect consumption in a significant way. High oil prices would necessarily have a high impact on the Chinese economy. That in time would backfire on the Japanese economy. So oil prices are a major problem at this moment, and it will probably be a trigger to at least change the optimism for the world economy for many people. I do not want to be a Cassandra, but this is something that we need to consider seriously. And, I do not know what kind of solution we have. The Iraqi situation, the geopolitical situation is deteriorating. It is only Iraq now. Iran, Saudi Arabia, those situations are deteriorating, and the demand is increasing so that some kind of adjustment may be necessary in the coming years.

Q: In order to force the greater cooperation among Asian countries, are there any possibility or advocacy of Asian leaders of forming a trading bloc with a common currency like the counterpart of the EC in Europe?

A: I think that the possibility of forming the trading bloc is very small. Regional integration in Asia is proceeding, but Asia is a very global area. Although intra-regional trade is increasing, its trade with the United States and European countries are quite significant in terms of the shares. I do not think that it is wise for the Asian countries to form a closed trading bloc. But more likely, development, if you think in terms of ten to fifteen years, is the formation of a common currency. As intra-regional trade and intra-regional FDI increase, there would be a stronger desire for the stability of the intra-regional currency, intra-regional exchange rates. Koreans want the stability in the Won/Yen relationship, rather than the Won/Dollar relationship. Eventually, those who are producing in China, or Chinese, would want the stability between the Yuan and the Japanese Yen. Rather than the Yuan and the U.S. Dollar. There is a possibility to form something like Asian Currency Units, like ECU, and eventually head towards the common currency. I think it will take fifty or sixty years to create a common currency, but some kind of creation of a common currency unit, or some looser type of cooperation on foreign exchange market is possible in a relatively short term. I have been proposing to various authorities to set aside ten percent of foreign reserves. Asian countries have huge reserves. Japan and China alone have one point three trillion dollars, so if we would set aside about ten percent of foreign reserves and jointly manage them in various ways, that would result in foreign exchange co-operations between countries. Setting aside ten percent is not that difficult, and some informal discussions are, I understand, going on, to deal with this type of foreign exchange cooperation. I hope that that would succeed.

Q: What and how do you evaluate the role of the Middle East in the expansion of the consumption market in Asia?

A: That is a difficult question, but as I pointed out, the energy is the key. Not only for Asia, but also for the world, at this moment. Sound development of those Middle Eastern countries and early settlement of political disruption is extremely important not only for Asia, but also for the rest of the world. Something needs to be done to redirect Western policies in that region, and that is absolutely necessary for the health of the world economy.

2004 ASAF Tokyo Conference Keynote Speech II
October 19, 2004

“Financial System Reform in China”

by LIU, Hongru

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With a PhD in Economics from Moscow University, Professor Liu Hongru has held various positions including Deputy Governor of the Agricultural Bank of China and People's Bank of China, Vice Chairman of the Economic System Reform Committee of China, Chairman of the China Securities Regulatory Commission (CSRC), and Vice Chairman of the Economic Committee of the CPPCC (Chinese People's Political Consultative Conference). He is currently Chairman of the Chinese Financial Education Development Fund Committee and the China Capital Market Research Committee.

1. History of Financial Reform in China

I am very happy to be here today to share with you my knowledge regarding China's financial system. As the title indicates, my speech today will focus on financial system reform in China.

I am personally the designer and enforcer of Chinese financial reform and the capital markets, especially the equity market. The transformation process of the Chinese economic system, from a planned economy to a market economy, commenced from the early 1980s and financial system reform followed. At the beginning of the 1980s, the State Council of China established a working group on financial system reform design, and I headed that working group. A number of research activities and surveys were conducted. In doing so, we learned from other countries' experiences. We studied the Japanese experience extensively, not only because of geographical proximity but also because of similarities between the financial systems of the two countries. Yesterday, I was able to meet Mr. Mieno, the former governor of the Bank of Japan. For the past 20-some years we have worked closely together and have participated in exchanges. From that point of view, I would like to express my gratitude to my Japanese colleagues.

There were four objectives that we set in the early 1980s for our reform activities.

To establish a central bank system in order to have macroeconomic tools.

To establish diverse forms of financial institutions with commercial banks at the center.

To create a multi-dimensional financial market system, which includes currency market, capital market, foreign exchange market and gold market.

To create a scientific management system for that structure.

For more than 20 years, we have gradually made progress towards these goals. In the 1980s, we primarily focused on banking system reform, and in the 1990s reform of the financial markets, especially, the capital markets. Since the turn of this century, especially since our accession to the WTO, we have focused on internationalization and further progress towards a market economy.

More recently we have concentrated our efforts on two aspects. One is further development of a supervisory mechanism for the financial system. Aside from converting the People's Bank to the Central Bank, we have established CBRC (China Banking Regulatory Commission) as well as CSRC (China Securities Regulatory Commission), and we also

established a central regulatory mechanism for the insurance industry. The other thing that we have done is to create four state-owned banks.

2. Multi-functional Financial System Establishment and Commercial Bank Reform

Since early 1980s, from what used to be a single People's Bank of China we have established the Industrial and Commercial Bank of China, Bank of China, Agricultural Bank of China, and China Construction Bank. These four state-owned banks were established by the People's Bank of China. Three policy banks as well as 112 city banks were also established. Furthermore, eleven additional shareholding-based commercial banks were established. Aside from that, trust companies, leasing companies, and finance companies were established in cities. In agricultural areas we established credit unions.

Among all of those diverse forms of financial institutions, we have focused on the reform of state-owned commercial banks, which provide the key for reform activities in the short run. As of the end of 2003, these four state-owned banks handled 65% of the people's deposits, 56% of all lending and 80% of settlement. How can we reform these four state-owned banks holds the key, and this is very important. The objective is to modernize them into modern commercial banks. That is the goal.

As a result of this focus, the following measures were introduced. One was to dissolve non-performing debts in 1999 and 2000, and four national asset management companies were formed one after another, which purchased and disposed of RMB1.3 trillion worth of the non-performing loans held by the four state-owned banks. At the same time, we intensified the internal control mechanisms of these state-owned banks, increased provisions for doubtful debts, and wrote off past bad debts. Each year, non-performing loans were reduced by 3-5%. As of the end of June 2004, the non-performing debt ratio was 15.59%.

Secondly, in 1998 we upgraded the capital base of these state-owned commercial banks, and for this purpose special government bonds worth RMB270 billion were issued. In December 2003, the State Council of China approved the set up of a central investment company, which provided capital for the equity of these companies. This company made an investment of US\$22.5 billion in the Bank of China and the China Construction Bank. Also, these banks further issued subordinated debt to enhance capital adequacy ratios to meet the BIS requirement.

Thirdly, reorganization into stock companies was effected in order to improve corporate governance. In other words, there will be general shareholders' meetings, board of directors and board of supervisors, and, through the introduction of strategic investors domestically and abroad, the single shareholding structure of the past was reformed. Within the banks, risk management systems were improved. This year, the Bank of China has been made a government holding company. The China Construction Bank was divided into two, a stock company (banking) and a group of various corporations.

Fourthly, listing of the stock of commercial banks which meet certain conditions is being promoted. This will help improve corporate governance and increase capital adequacy ratios. As of now, five stock companies have been listed. The Bank of China, and the China Construction Bank are trying to meet the necessary conditions for listing. The Bank of Communications has received some foreign capital and has also targeted listing on the exchange. These are the reforms pertaining to banks.

3. Multi-layer Financial Market System Developments and Direct Financing Improvement

Now, I would like to talk about reforms in the financial markets.

Since the 1990s China has made great advances in terms of financial markets.

The currency market and the capital market have both made great leaps forward. Inter-bank call, bill, trust, bond, stock, insurance, and foreign currency markets have been established. Players participating in the financial markets are becoming more diverse, and foreign and private capital is being introduced.

There are more diverse products in the market; financial bonds, corporate bonds, central bank bills, notes, stocks, hybrid securities, and various other types of products are emerging.

The legal system has also been enhanced. A legal framework for these financial markets centered on "Company Law" and "Securities Law" has been established.

As you know, the Chinese economy is shifting from a planned economy to a market economy, and in that transition we see some common issues, as well as unique problems to China.

Needless to say, reform is extremely difficult. Some of the challenges that we are facing and trying to solve are as follows: (1) the percentage of securitization and direct financing is low, thus, various financial markets need to be developed; in particular, capital market improvement is essential. (2) The currency market has only started to be established, products transacted are not numerous, and volume is very limited. Therefore, central market operations cannot be fully exerted. (3) Stock market development has been very rapid, but in terms of institutions there are some weaknesses which hamper healthy development. (4) As for the bond market, it comprises mostly government bonds with very few corporate bonds, therefore we need to rationalize this system. (5) As for the futures market, there are only commodity futures, the number of products is very small. Financial futures are non-existent as yet.

Next, I would like to talk about the development of the Chinese stock market. The stock market started at the beginning of the 1990s with the establishment of stock exchanges in Shanghai and Shenzhen. It has seen very rapid development over the past decade or so. By the end of July 2004, there were 1,367 companies and 71.56 million investor accounts. Also, there are many securities investment and securities funds. However, there are still systemic and structural problems in the stock market which need to be solved.

The first problem, in comparison with Western developed markets, is that the stock market in China started rather late. Therefore the size of the market is still small. Market capitalization at the end of 2003 was RMB4,245.7 billion or 36.38% of GDP. However, 60% of Chinese stocks are not floated and those floated are only 11.29% of GDP. In other words, the stock market still has much room to grow, and it still has not met all the needs of economic development. This is why we are trying to raise the percentage of direct financing, and we would like the capital markets to function and exert their effects. We are trying to correct the situation where corporations are overly dependent on bank loans.

Secondly, from the point of view of raising liquidity, we have floated and non-floated stocks, which are handled differently, and this is a problem. Sixty percent of shares are not traded, 40% are traded. This is a problem, which, of course, stems from historical development and background. We have too high a percentage of stocks being held by the state. Most listed Chinese companies were originally state-owned enterprises that were converted to stock-based companies, therefore we still have a high percentage of government holdings which are not traded because the government does not allow state-owned shares to be traded. We also

have smaller shareholders. Thus, there is sometimes a conflict of interest between the biggest shareholder, the state, and smaller shareholders. The largest shareholder tends to make decisions, which are against the interests of the smaller minority shareholders and retail investors. Fund providers cannot, in practice, engage themselves in the management of companies, so we see situations in which corporate executives engage in insider trading. It is quite important that we have a more diverse stock system. The companies, at the same time, are trying to enhance corporate governance, and through such efforts we hope to overcome the problems that I have just mentioned.

Thirdly, we have an irrational investor mix. Most of them are retail, though we also have institutional investors, but they are still weak. We are promoting the development of institutional investors very actively, for example, through securities investment funds, and others. We would like to increase the number and type of funds. As of the end of August this year, 40 fund management companies had already been established with 146 funds and assets exceeding RMB300 billion, which is about 25% of the aggregate traded value of these companies. In addition, we are seeing steady growth of funds such as social security funds, pension funds, and commercial insurance funds. In other words, we are seeing an increased number of, and more diverse institutional investors participating in the capital market through these securities fund markets and others.

Fourthly, we need to improve the level of supervision which is inadequate in terms of standardization. Since there is not much voluntary supervision, we are trying to establish a supervisory mechanism comprising all central, such as CSRC, and local securities supervisory organizations as well as stock exchanges. We also need to develop a better supporting legal framework and are currently working on that. Management and supervision rely on a certain high level of skills. Market participants demand efficient market management, but there still exists a major gap between what is needed and what is provided. While trying to reduce governmental approval procedures, at the same time we are trying to raise transparency and efficiency. In enhancing the market mechanism we are also trying to introduce disclosure rules.

Fifthly we have a single-layer capital market. We do not have the necessary depth or the multi-layered nature of a capital market, which means that it does not meet economic reality or needs of participants. The other day, I visited the Tokyo Stock Exchange, and exchanged views with the chairman. They are making necessary efforts to meet the diversifying multi-dimensional development of capital markets, which greatly enlightened me. We are now in the surveying and investigating process in order to create a Chinese form of a multi-layer, multi-functional capital market system. In May of this year at the Shenzhen Stock Exchange, we established a new small-to-medium enterprises board for smaller businesses and for companies run by individuals and also for high-tech venture companies. This provides the basis and sets the necessary conditions for providing funds to these people, but it is not yet sufficient. We are now expediting efforts to establish a venture board, like NASDAQ in the United States or JASDAQ in Japan.

4. Promotion of Foreign Currency System Reform and Enhancing Opening-up of China's Financial Industry

The last topic I would like to cover is the promotion of foreign currency system reform and enhancing the opening up of China's financial industry. From the point of view of foreign

exchange, because China is experiencing a transition from a planned economy to a market economy the foreign currency control system is also undergoing major change, from very strict control to a more loose form of management. In 1994, the official rate was unified with the market rate, and with that, we have a nationwide single international exchange settlement market. At the same time, based on this and the supply situation in the market, a managed floating exchange system was introduced.

On December 1, 1996, China adopted paragraphs 2, 3, and 4 of Article 8 of the Articles of Agreement of the International Monetary Fund and lifted all limits on currency exchange for current transactions. Therefore, we have eliminated exchange restrictions on currencies for every current transaction item. Based on the assumption of effectively eliminating risks in a selective manner, we are following processes to gradually lift restrictions on foreign capital exchange, thus moving towards exchanges taking place in the capital accounts area. In December 2001, China was admitted to the World Trade Organization (WTO), and since then, based on our commitment to the WTO, we have made steady progress to meet our obligations in the opening up of the banking, securities, and insurance industries.

As for the opening up of the banking sector we have taken measures in four areas. Foreign capital banks were allowed to expand their scope of RMB activities in China. Already in 13 cities across the country we have foreign bank branches that are allowed to carry out RMB business activities. By the end of 2006, all regional restrictions will be lifted and at the same time RMB business with individual Chinese citizens will be allowed for foreign capital banks. At that time, treatment to foreign banks in terms RMB business will become identical to that of Chinese banks.

Foreign capital banks and domestic banks are encouraged to have various types of equity-based cooperation. For example, we have Citibank, Hong Kong & Shanghai Bank, Hansen Bank, International Finance Corporation (IFC), the Government of Singapore Investment Corporation, and the Bank of Nova Scotia of Canada. And a number of foreign capital-based financial institutions have invested in Chinese domestic banks.

Accelerate the opening up process of the financial field other than banks. China has already permitted the setting up of four auto loan companies with foreign capital. Establishment of finance companies by foreign investment companies to promote internal financial management services was also permitted. At the same time, investment or equity participation by foreign companies to domestic finance companies are encouraged. Administrative approval procedures for the establishment and activities of foreign banks will be simplified, thus efficiency will be enhanced. Financial product innovation will be promoted and encouraged, so that many new bank activities can be created. At the end of August this year, there were approximately 200 foreign operational bases in China, of which 162 were branches and 14 subsidiaries. Also, there were 216 representative offices of foreign banks. Foreign banks are increasing their base of operations in this way, and their activities are also developing very rapidly. At the end of July this year, the total assets of foreign banks amounted to US\$64.3 billion, and their market share was 1.82%. Assets of foreign banks tend to be relatively good, and the non-performing loan ratio is 1.59%, which is a very low percentage.

Next, I would like to talk about the securities business, and how it is to be opened up to other countries. The securities market in China since the beginning of its inception has gradually continued to be opened up through various measures.

Firstly, China had a history of issuing bonds outside the country for more than 20 years. In the middle of the 1990s, Chinese companies in Hong Kong and other markets studied the issuance of stock. In 1992, I was entrusted by the State Council of China to establish a study team with some people in Hong Kong. We took one year to study law and foreign currency control, exchange control, and transaction systems and rules, and we came up with some documents. From 1993, Chinese companies were able to list shares in Hong Kong and other foreign markets. As of July 2004, there were 106 Chinese companies listed abroad (H shares), and the cumulative amount of capital raised is US\$32.72 billion, which is substantially half of the cumulative A-shares.

Secondly, there is the QFII System (Qualified Foreign Investment Institute System), which is being implemented. As of July 2004, already 17 foreign investment institutions had received this qualification. For 15 companies that made application the total investment quota is US\$1.95 billion. I think it important that these moves are being adopted, and the fact that foreign institutions can enter the Chinese market directly is a very important step forward.

What about joint ventures between Chinese companies and foreign ones? Well, this is also being promoted. As of August this year three joint venture securities companies had started their business, and one company had got approval. Also, 11 joint venture fund management companies had started their business, and three companies had got approval.

Now, the insurance industry, I would like to tell you how that industry is being opened up. As of June this year, 39 foreign insurance companies had 67 sales bases or offices in China. They are 22 life insurance companies, 14 non-life companies, and three re-insurance companies. The area of operation is from Shanghai to Beijing to Guangzhou and 12 other cities in China. As of April of this year, the total assets of foreign insurance companies amounted to RMB23.5 billion. At the end of this year, foreign insurance companies will be able to apply for setting up insurance bases in any region in China, and they can have insurance intermediaries with up to 51% of capital. As for life insurance companies, their scope of activities can be health insurance for Chinese and foreigners, group insurance, and endowment insurance. We expect the scope to be broadened, and laws and regulations have been established. After acceding to the WTO we had to meet our obligations, so that in 2001 China established a regulation for the management of foreign insurance firms and in 2002 the insurance law of China was revised, with related regulations and laws being upgraded.

Over the past two decades or so, financial reforms have taken place, and China has opened up and developed greatly with many successes in the financial area. The national economy plays a very important role, and, of course, we are going to further promote opening up. At the same time, we are well aware that we must prevent risk and promote efficiency. In further opening up the economy to foreign countries, the competitiveness of China's financial industry also needs to be enhanced. This means that banks themselves have to become stronger, and the financial market has to be nurtured and developed. Up until now, we have learned from our experiences, and we are going to continue to further deepen our measures to open up the economy, so that sustainable and stable development of the economy can be promoted.

Thank you very much.

Q: Does China intend to integrate the Shanghai and Shenzhen stock exchanges?

A: For the time being, we are not thinking about bringing them together. Shenzhen is for smaller businesses, and the future venture board, like NASDAQ, will be there, too. These two exchanges are run based on a very rational division of labor, so there is no plan for integration

Q: How does China try to address the rapidly increasing need for talented individuals? Can you tell us how you intend to develop human resources?

A: In terms of human resources in China, very high-level skilled expertise is greatly needed. We are in the process of increasing the number of students at universities. At the same time, we are promoting cooperation with educational facilities around the world so that we can nurture and develop people with the required skills. We are also promoting financial engineering expertise for individuals and education for the CFP. Hence, we are trying to promote the development of human resources with diverse expertise.

Q: In order to meet the demands for increased financing, disclosure of information, dissemination of information, as well as regulation of information, what regulatory environment is envisioned?

A: I believe that there is a similarity between what we see in China today and the high growth period of Japan. We have a very high level of indirect financing, but since the beginning of the 1990s have been trying to increase direct financing from the market, but it is rather slow. Recently, the central government has promulgated a new law designed to significantly promote capital market growth. And, the State Council of China has put together groups based on the new law, so that we can promote growth of new capital markets. When the plans of the State Council are put into practice, you will start to see major changes. Every state-owned company and enterprise, except for a few, will become a stock-based company. Most state-owned enterprises will become stock based, which has already been decided. Private capital and foreign capital will be accommodated for more diverse equity, which means there will be less pressure on financial institutions from lending. In other words, when conditions are met, these companies can raise funds from the capital market. So this is a most important move. The second important measure, which I have already touched upon, is to develop capital markets, especially the stock market, and through that, in the next few years we would like to overcome problems pending, as well as any new problems which may arise. Thirdly, we will focus on intermediary agencies, which will be growing. For example, brokers. We will need to increase their number as well as that of institutional investors and venture funds. For venture funds, regulations are being revised so that we can grow capacity on the investing side. By then, we will be able to put together an environment conducive for direct financing.

Q: The next question is about the depreciation system adopted by corporations. Even if facilities cannot be used any more, the entities concerned still have borrowing from when they bought such facilities, and they cannot repay the debt because of the non-existence of depreciation. This might have led to the non-performing loans. In other words, the profit concept needs to be clarified, and, based on that, depreciation needs to be clarified. This would promote the development of companies in China. I wonder whether the depreciation concept is widely accepted and practiced in China.

A: You are completely right, SOEs (state owned enterprises) and their finance departments really did not think about depreciation very much – profits were made and investment was effected by the finance department. But, we are trying to shift to a stock company status. This means we have to revise the accounting system in regard to depreciation. Many companies are listed domestically, and some are even listed outside, and therefore basically use Western accounting standards. Because of this, as you asked, accounting standards need to be harmonized, and I think that will help solve the problem.

Feature Article – Portfolio Constraints and Information Ratio

Active Management and Portfolio Constraints

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This article attempts to simulate and measure the impacts/effects on active management of various

1. Emerging Enhanced Index Funds
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constraints, such as limit on the number of issues held in a portfolio, restriction of short-sales, or upper/lower limits of holding weights. The simulation results indicate that it is effective to hold many issues, as in enhanced index (EI) funds, in order to increase the efficiency of portfolio/fund operations. Constraints on holding weights, such as the upper/lower limits of weights, have a greater possibility to improve the efficiency of portfolio operations rather than lowering the information ratio, because they alleviate the negative impact on performance of extreme estimated returns. Furthermore, in some cases, such as existing active funds, the high efficiency of fund operations cannot be maintained when the number of holdings is limited, unless greater risks are taken.

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1. Emerging Enhanced Index Funds

In reviewing “manager structure,” quantitative performance with respect to both past and expected future returns is highly evaluated as well as qualitative considerations such as philosophy or investment style. In this context, the ratio between active returns and active risk against a benchmark, namely the “Information Ratios” (IR), is used, and some managers have adopted “Enhanced Index (EI) funds” which restrains active risks in order to maintain IR at a high level by investing in many issues.

It is said that IR indicates the fund operational ability of fund managers. If ability is irrelevant to active risk (TE: Tracking Error) level and constant, greater tracking error means higher active returns. When TE increases, however, returns do not actually improve in proportion to TE due to various constraints and effects caused by costs, resulting in lowering IR. Thus, managers tend to avoid taking high risks in order to maintain IR. The purpose of this article is to verify the impact on IR by constraints associated with portfolio construction.

We assume active equity operations set against particular benchmarks. In constructing a portfolio, stocks are selected and active positions taken. Then decisions regarding investment weights for active stock issues are made. Of course, in some cases these processes are pursued simultaneously.

EI Funds are generally said to be those which restrain active risks by maintaining investment weights almost unchanged from those of their benchmark levels. In other words, this is a strategy where effective returns are pursued with risks restrained by narrowing the range of bets and increasing the frequency of bets simultaneously.

Grinold and Kahn (1999) showed that the following relation exists between the number of invested issues and operational ability (IR).

$$IR = IC \times \sqrt{N} \quad (1)$$

Here, IC (Information Coefficient) is the correlation between the (ex-post) realized active returns¹ and the (ex ante) expected active returns estimated in previous (alpha)². The “N” independent expected alpha frequency per year, namely the number of all issues. In short, IR increases in proportion to alpha accuracy and the square root of the number of stocks held. (Alpha here refers to what extent the expectation/projection was achieved.)

Furthermore, Clarke, de Silva and Thorley (2002) showed that the following relation would exist if the covariance structure of active returns were not considered.

$$IR = TC \times IC \times \sqrt{N} \quad (2)$$

Here, TC (Transfer Coefficient) is the correlation between each issue’s active weight and alpha. Generally, even though managers can predict alpha with some accuracy, they cannot construct a portfolio based on such prediction. Due to fund operation constraints, they may not be able to utilize their predictions to the full. As a result, their operational ability depends not only on the number of issues held and alpha projection accuracy, but also their ability to construct portfolios, as shown in equation (1).

Here, we assume that the alpha (or structure of active risk) of each of the issues held for EI funds is identical to that of a known active fund, which means they have the same IC. The IR

¹ Hereafter “realized active return” is termed “active return” unless otherwise specified.

² Hereafter “active return” is called “ ” to clearly distinguish it from realized active return.

difference between these funds is derived from N (number of issues held) shown in equation (2) and TC (portfolio construction ability)³.

Under the condition of long-only constraints without any short-sales, ordinary active funds focus investment on a small number of issues which carry big alphas. This lowers N as well as restrains taking issues with small (or negative) alphas for short positions. At the same time, the relevant weight becomes negative against the benchmark regardless of alpha size by holding not many issues. This lowers TC. In short, EI operations enlarge N by investing smaller amounts in many issues more broadly, while increasing IR by preventing TC from dropping. Recently, another operational style, Long-Short (LS) funds has appeared, which increases TC by reducing constraints on short-sales.

Grinold and Kahn (2000)'s simulation indicated that not a negligible impact is inflicted on performance due to inefficiency deriving from holding weight constraints. Contrarily however, Frost and Savarino (1988) pointed out the possibility that the effect of estimated errors (discrepancy) in risk structure is neutralized by non-negative constraints on portfolio construction or by the upper limit of the number of individual issues held in a portfolio. Similarly, Jagannathan and Ma (2002) theoretically showed that non-negative constraints or the upper limit weaken the variance-covariance structure of total returns, resulting in positive effects which offset the estimated error of risk structure.

Based on these points, this article projects the effects of these constraints from the viewpoint of numerical analysis through simulations. Here, we also consider the concept of returns estimated in previous and actual returns in order to measure actual performance of portfolios constructed based on estimates/projections made in previous, which idea was not considered by Grinold and Kahn. Furthermore, we also verified the case where there is an upper limit on the number of issues held in a portfolio by covering not all the issues of the relevant benchmark as the investment universe. Also, simulations are made to measure the effects of the points raised by Frost and Savarino (1988) and Jagannathan and Ma (2002). As a result, the effects of constraints limiting issues held become extremely significant for operational efficiency. The possibility is shown that higher active risks can achieve higher efficiencies when the number of issues held is limited. It is also shown that constraints on weights, such as upper/lower limits, can improve operational efficiency.

This article is constructed as follows. First in the next section, effects of practical constraints are considered using a model. In Section 3, we explain the simulation framework used to project the effects stemming from the constraints. Section 4 shows the projection results. Finally, in Section 5, we give our conclusions as well as problems and possibilities not considered by the simulation.

2. Effects of Constraints on Portfolio Construction

2.1 Effects of non-negative constraints

The number of issues held by ordinary domestic active funds is approximately 100, while the number of issues comprising TOPIX (the benchmark) is as many as 1,500⁴. This means that ordinary active funds always underweight most issues according to the benchmark weights. It seems that usually they do not have a very bearish view (which means a negative alpha) regarding all the issues compared to the benchmark. On the other hand, even if they are not very bullish (positive alpha), the funds must hold issues which have high benchmark weights and high carrying risks in order to restrain TE to some degree. Considering all this, it

³ The question how many issues should be held depends on constraints on portfolio construction, research costs needed to increase accuracy, and transaction costs of actual trading. As analysis taking these factors into account would make discussion in this article extremely complex, we do not discuss the matter here. See Section 5.

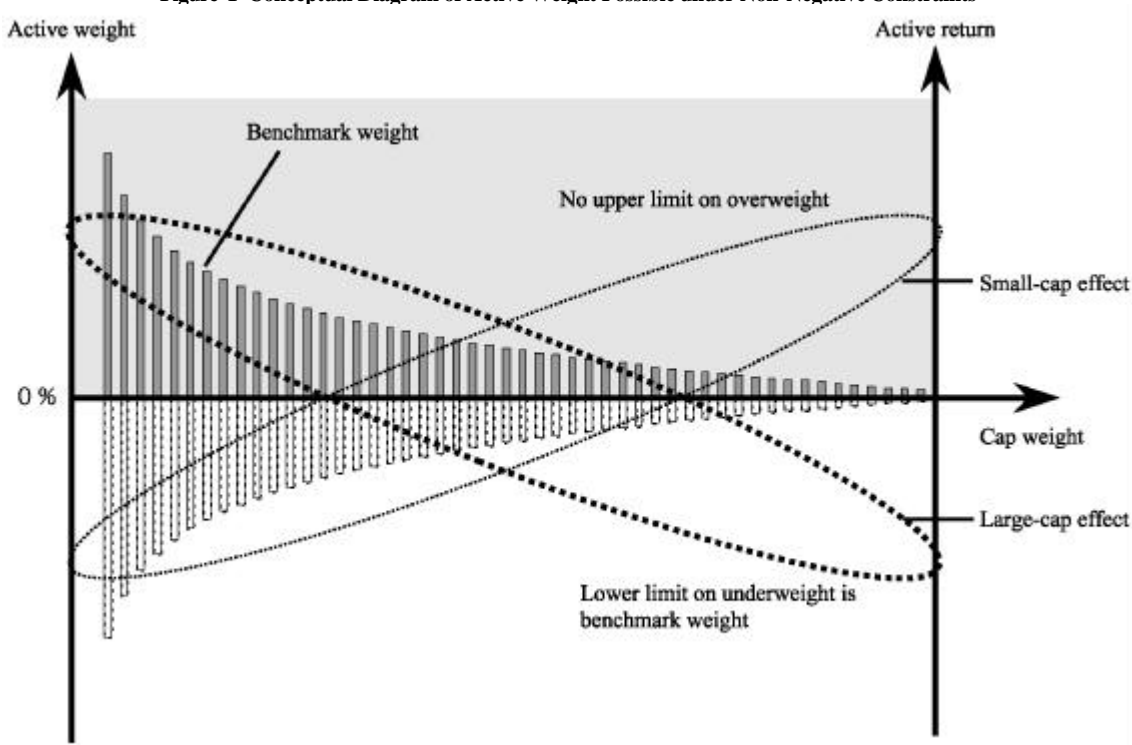
⁴ As of the time of writing this article.

is possible that the portfolio construction abilities (TC) of many existing active funds are fairly low, as pointed out by Clarke, de Silva and Thorley (2002).

Furthermore, markets change dynamically. If one expects a market environment where returns on small-cap stocks tend to be higher in a particular period (small-cap effect), one can underweight large-cap stocks and overweight small-cap stocks so that the TC would be increased. In this case, even under non-negative constraints, large-cap stocks could be rather significantly underweighted down to their benchmark weights, while no upper limit exists on the overweight range of small-cap stocks. It is relatively easy to increase TC if the market impact is ignored. On the contrary, if one expects a market environment where returns on large-cap stocks tend to be higher in a particular period (large-cap effect), one needs to overweight large-cap stocks and underweight small-cap stocks to increase TC. Under non-negative constraints, however, small-cap stocks can be underweighted only down to a very marginal benchmark weight. Thus, large-cap stocks cannot be much overweighted and it is not as easy as in small-cap stock markets to improve TC (see Figure 1)⁵.

Flood and Ramachandran (2000) made a positive analysis of the effects from these constraints. According to the analysis, many active funds fell behind the benchmark in terms of returns in the late 1990s when the US market rose mainly due to large-cap stocks. On the contrary, it is also proven that many active funds outperformed the benchmark in the early 1990s.

Figure 1 Conceptual Diagram of Active Weight Possible under Non-Negative Constraints



2.2 Analysis using a model

Now, assume that the benchmark is a market-value-weighted stock index. N is the number of issues comprising the index. Vector $r \in \mathbb{R}^N$ is realized active return. σ_r^2 is cross section

⁵ If TC does not change in accordance with market changes, the following could be the explanation. As large-cap stock issues have more influence on performance, more research costs are spent on large-cap issues. As a result, values are more accurately estimated for the large-cap issues, while smaller cap issues may have smaller TC. In addition, common effects from the relatively high accuracy of effects may appear. The stronger side of effects may appear.

variance. Vector $\alpha \in \mathbb{R}^N$ is the value estimated by fund managers. σ_a^2 is cross section variance. The active return/alpha of the i^{th} issue are r_i and a_i ($i = 1, K, N$) respectively.

Also, the define $\Omega \in \mathbb{R}^{N \times N}$ as the variance-covariance matrix of α . To simplify the matter, assume that the manager's IC is identical to all the issues comprising of the benchmark. Thus, the IC is the correlation between r and α at the cross section.

$$IC = \frac{\text{Cov}[r, \alpha]}{\omega_r \omega_\alpha}$$

The number of issues held in a portfolio of a manager is represented by n . Vector $x \in \mathbb{R}^N$ is the active weight of each issue of the portfolio. The x_i is the active weight of the i^{th} issue. σ_x^2 is cross-section variance. The manager's TC is the correlation between α and x at the cross section, shown as follows. Vector $b \in \mathbb{R}^N$ is the benchmark weight of individual issues. Scholar b_i is the benchmark weight of i^{th} issue.

$$TC = \frac{\text{Cov}[\alpha, x]}{\omega_\alpha \sigma_x}$$

Now, a manager structures a portfolio minimizing active risks to achieve a target expected value "t" for the investment return which outperforms the benchmark performance required to be achieved by investors. Practically, fund constraints are set to make the sum of active weights zero (0) so as not to cause a shortage/excess of funds. Thus, the active weight of respective issues is x which satisfies the constraints of the following variance minimization question.

$$\begin{aligned} \text{Min. } & \frac{1}{2} x^T \Omega x, \\ \text{s. t. } & \alpha^T x = t, \\ & e^T x = 0. \end{aligned} \tag{3}$$

(Here, T represents the transposed matrix. $e^T = [1 \ K \ 1] \in \mathbb{R}^N$ and t is the target return.)

More realistically, the existing active operation style selects one "nth" issue for investment among all N issues comprising of the benchmark. The following is the variance minimization question where a constraint requires the other issues not to be held⁶.

$$\begin{aligned} \text{Min. } & \frac{1}{2} x^T \Omega x, \\ \text{s. t. } & \alpha^T x = t, \\ & e^T x = 0, \\ & \text{diag}[-(h-1)]x = -\text{diag}[-(h-1)]b. \end{aligned} \tag{4}$$

(Here, $h \in \mathbb{R}^N$ is a vector of holdings that shows the issue held is 1 and that the issue not held is 0. $\text{diag}[\]$ is the operator which diagonalizes the vector.)

⁶ This is so-called "long/short strategy".

One can also use the following equation setting the constraint. This constraint requires portfolios to hold issues at the same weights as benchmark weights. This is different from just “not investing in issues which are excluded from the investment universe.”

$$\begin{aligned}
& \text{Min. } \frac{1}{2} x^T \Omega x, \\
& \text{s. t. } \alpha^T x = t, \\
& \quad e^T x = 0, \\
& \quad \text{diag} [-(h-1)]x = \text{diag} [-(h-1)] O.
\end{aligned} \tag{4'}$$

(Here, $O \in \mathbb{R}^N$ is the vector which shows all the elements are 0.)

Furthermore, it is more common to set the constraint on holding weights of respective individual issues for investment as follows, in addition to equations (4) and (4')⁷.

$$\begin{aligned}
& \text{Min. } \frac{1}{2} x^T \Omega x, \\
& \text{s. t. } \alpha^T x = t, \\
& \quad e^T x = 0, \\
& \quad \text{diag} [-(h-1)]x = -\text{diag} [-(h-1)] b, \\
& \quad \text{ub} \geq \text{diag} [h] x \geq -\text{diag} [h] b.
\end{aligned} \tag{5}$$

(Here is the vector $\text{ub} \in \mathbb{R}^N$ which indicates the upper limit of active weight of respective issues.)

Or it would be more common to put the variance minimization question as follows^{8,9}.

$$\begin{aligned}
& \text{Min. } \frac{1}{2} x^T \Omega x, \\
& \text{s. t. } \alpha^T x = t, \\
& \quad e^T x = 0, \\
& \quad \text{diag} [-(h-1)]x = \text{diag} [-(h-1)] O, \\
& \quad \text{ub} \geq \text{diag} [h] x \geq -\text{diag} [h] b.
\end{aligned} \tag{5'}$$

TC (portfolio construction ability), which is the correlation between and active weight x , is significantly constrained by setting these constraints in addition to equation (3). Next, we confirm these effects with the simulation.

3. Analytical Framework

This section projects the above-mentioned effects caused by the number of issues held or non-negative constraints, or upper/lower limits of active weights on performance, simulating them as follows:

First, generate realized actual returns based on a normal random number of N issues.

⁷ This is ordinary “active strategy”.

⁸ This can be the same as enhanced indexing funds.

⁹ More practically, it is common to set constraints on sector weighting or factor exposures. To simplify discussion, these issues are not considered here.

Assume that prediction accuracy is IC for realized active returns. And, generate estimated using the Cholesky decomposition method.

Based on this estimated , construct a portfolio. Set the following constraints in accordance with equation (4) or (5).

- a) Limit on number of issues held
- b) Non-negative constraint
- c) Upper/lower limits of active weights

Measure the portfolio's realized active return, active risks, and realized IR.

The above steps were repeated 1,000 times for every case of constraints and respective average figures were calculated for realized active return, active risk, and realized IR.

The number of issues comprising the benchmark is set at 500 for convenience. No consideration is made for costs related to estimation or portfolio construction.

4. Results of Analysis

4.1 Effects from constraints of holding weights

To see the effects of “holding weights constraints” (non-negative constraint or upper/lower limits), compare results of equations (4) and (5) for the $n=500$ case (total 500 issues consisting of the benchmark). Each equation minimizes its target function, using estimated series. Figure 2 shows de-facto performance before using the portfolio's estimated calculated by the equation. And Figure 3 show the portfolio's de-facto performance after using the realized active return series. For comparison, we also describe the respective results when we set the upper/lower limits of active weights at 1%, 0.75%, and 0.5%¹⁰.

First, we assess the effects of holding weight constraints on portfolio construction, using the estimated in previous. Figure 2 shows the average value of estimated IR and TE, generated by optimizing each simulation for cases where there is no weight constraint, and that there are upper/lower limits on active weights and that there is a non-negative constraint.

According to this, if there is no weight constraint at all, the higher the target active return “ t ” is, the higher TE is. This is a linear relation. Thus, estimated IR is constantly the same, irrelevant to the target active return level. However, if there is an upper/lower limit or non-negative constraint, one sees that higher target active return levels tend to lower IR. As assumed qualitatively to a certain degree, estimated IR under a non-negative constraint lowers rather rapidly when TE increases. This is a significant constraint in terms of portfolio construction. The upper/lower limit can be a constraint factor for portfolio construction as the possible range of active weights is narrowed¹¹. The effects, however, are not as significant as those of non-negative constraints.

Figure 2 Effects on IR by Weight Constraints (1) [500 issues, estimated active returns]

¹⁰ In some cases, upper/lower limits are set at relative ratios against benchmark weights. However, here we assume constraints are set at absolute levels of active weights.

¹¹ In the simulations, the benchmark weights of respective stock issues are generated to make logarithms of the benchmark weights at normal distribution using normal random numbers, so that benchmark weights will approximate actual weights. As a result, benchmark weights here are approximately 2% at maximum and approximately 0.01% at minimum.

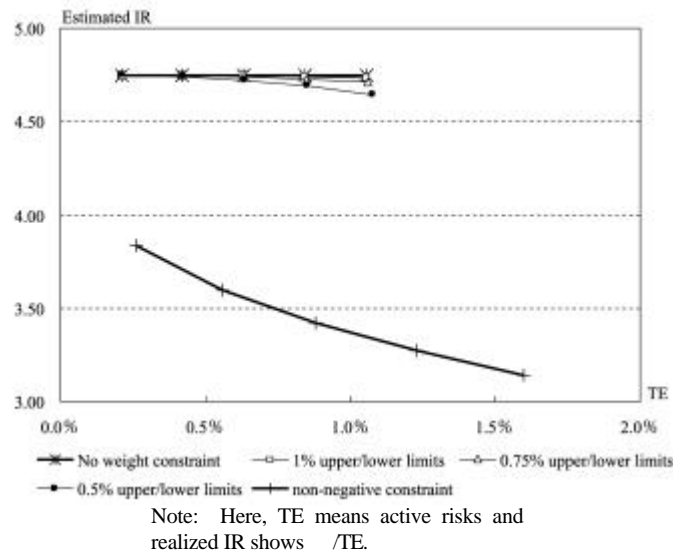
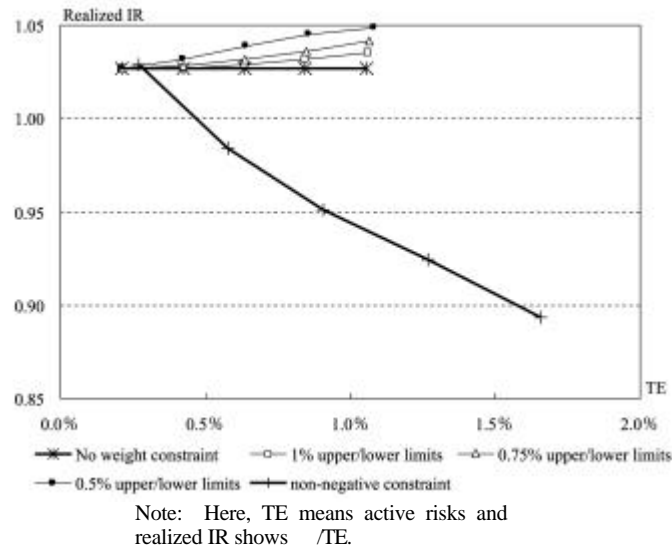


Figure 3 Effects on IR by Weight Constraints (2) [500 issues, realized active returns]



Next, we confirm such de-facto performance. Figure 3 is the result measured on a realized-return basis. The realized de-facto active return and TE where there is no weight constraint are the same as those before. The higher the target active return “t” becomes, the higher TE becomes. This is a linear relation. This simulation chose 0.05 as the IC level, which shows how much of the active return expected before the fact can be realized after the fact. Thus, although the level itself is very different from that of the estimated IR, the realized IR becomes constant regardless of the target active return level. Suppose that the relation in equation (2) exists here. Then, TC in this case would be projected as follows:¹²

¹² Realized IR is measured using realized active returns carrying a correlation between the estimated IC before the fact and IC . The realized IR level itself is affected by cross-section variance σ^2 , which is used for simulation. This is probably the reason why TC becomes smaller than theoretical value, 1.

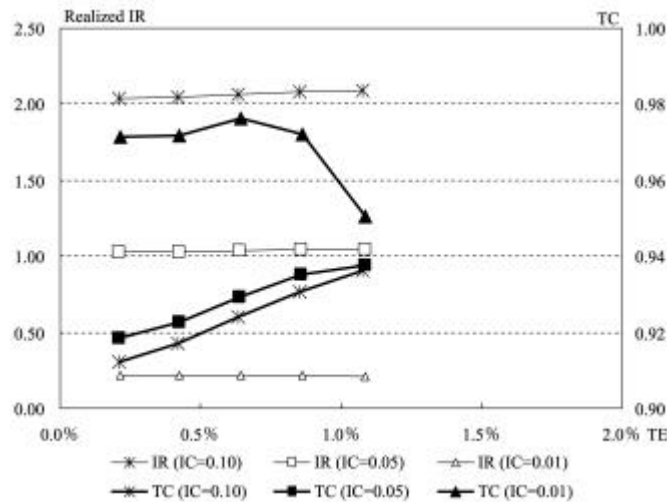
$$\begin{aligned}
TC &= \frac{IR}{IC \times \sqrt{N}} \\
&= \frac{1.027}{0.05 \times \sqrt{500}} \\
&= 0.919
\end{aligned}$$

On the other hand, the non-negative constraint, which is a very big restriction on estimated IR before the fact, also significantly influences after the fact. The higher the target active return is set, the more conspicuous the effects become. In the case where “t” is 5.0%, realized active return becomes 1.426% and TE becomes 1.655%. If one uses equation (2), TC is calculated to be 0.800. This means that portfolio construction ability is reduced by approximately as much as 13%, compared to the case where there is no constraint. The realized active return level, however, outperforms that in the case of no constraints. TC lowered rather due to increased active risk. This can be explained as follows. Non-negative constraints force investment to focus on issues which bring a positive . This results in lowering risk diversification efficiency and estimated accuracy. In the case of high risk/high return, the impact becomes more significant.

Furthermore, we obtained a very interesting result for the after the fact effect from the upper/lower limits, which were relatively marginal constraints for portfolio construction in terms of estimated IR before the fact. The narrower the range of possible active weights becomes or the higher the target active return level becomes, the higher realized IR becomes. If the upper/lower limit of active weights is 0.5%, TC (t=5.0%) is calculated to be 0.937 in equation (2). This means that portfolio construction ability improves by approximately 2% compared to the case of no constraints. These phenomena can be interpreted as follows. If no upper/lower limit exists for issues carrying estimated to have extremely large absolute values, extremely large active weights are set for such issues through the optimization process. If this estimated high (active return) is not achieved, performance is very negatively influenced. However, if one set upper/lower limits, one can avoid these extreme weightings and alleviate the negative effect on performance. This can improve portfolio operational efficiency. Thus, it is observed that these upper/lower limits have the effects pointed out by Frost and Savarino (1988) and Jagannathan and Ma (2002), although they are minor.

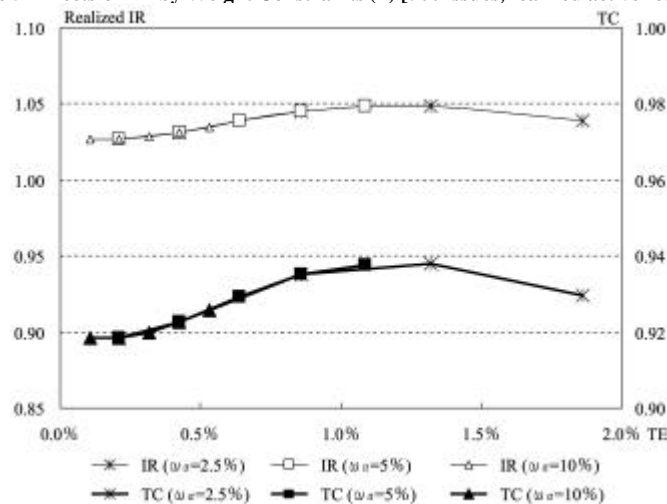
It is assumed that the positive effects these upper/lower limits have on performance depend on accuracy (IC) and variance of cross-section distribution of estimated active returns. A higher IC has smaller effects, while a lower IC has bigger ones. The broader cross-section variance is, the stronger the effect becomes. The narrower the variance is, the weaker the effect, Figure 4 shows the effects of different ICs and Figure 5 illustrates the results of the effects caused by different cross-section variances. The upper/lower limits on weights are all set at 0.5%.

Figure 4 Effects on IR by Weight Constraints (3) [500 issues, realized active returns]



Note: Here, TE means active risks and realized IR shows r/TE . TC is calculated by equation (2). The active weight of upper/lower limits is set at 0.5%.

Figure 5 Effects on IR by Weight Constraints (4) [500 issues, realized active returns]



Note: Here, TE means active risks and realized IR shows r/TE . TC is calculated by equation (2). The active weight of upper/lower limits is set at 0.5%.

First, we discuss the effects weight constraints have on portfolio construction for different ICs. Naturally, a higher IC heightens the realized IR level after the fact. If IC is increased more and more from 0.01 through 0.05 to 0.10, the difference in realized IR levels becomes wider and wider. It is evident, however, that TC tends to be higher when IC is lower. If ICs are 0.10 and 0.05 respectively, the IR becomes higher provided the target active return “ t ” (or TE) is set higher. If the IC is 0.01, TC increases until TE reaches around 0.6%. However, if TE increases above this level, TC lowers. This can be explained as follows. As “ t ” increases, the negative effects on portfolio construction caused by upper/lower limits become bigger than the positive effects from the estimated errors in active returns.

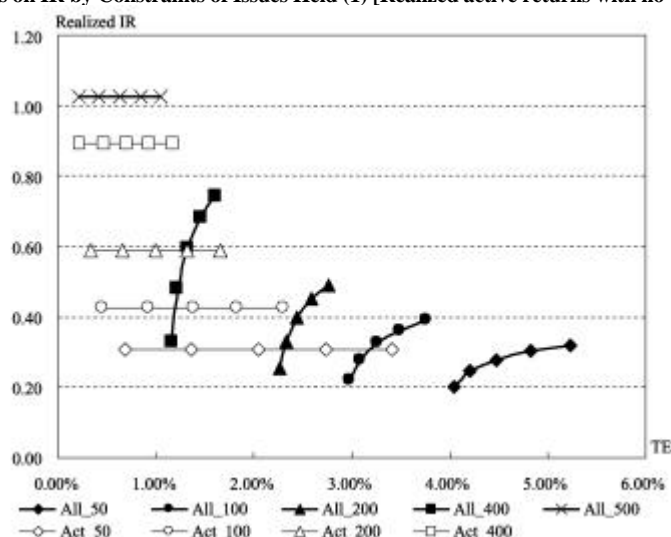
Next, we see how portfolio construction is influenced by weight constraints derived from different cross-section variance ² of estimated active returns. Effects caused by the change depend on the target active return “ t ” level. It can be said that a smaller t can alleviate negative effects on portfolio construction stemming from upper/lower limits on

weights. On the other hand, however, an extreme position needs to be taken in order to achieve the same level “t,” compared to the higher case. Influenced by this, portfolio construction ability (TC) weakens. These factors are the reasons why starts to lower when TE reaches around 1%, while is 2.5% . On the contrary, it is assumed that when is 10%, TC improvement remains at a relatively low level, as the constraint from “t” is relatively moderate.

4.2 Effects from different number of issues held in portfolios

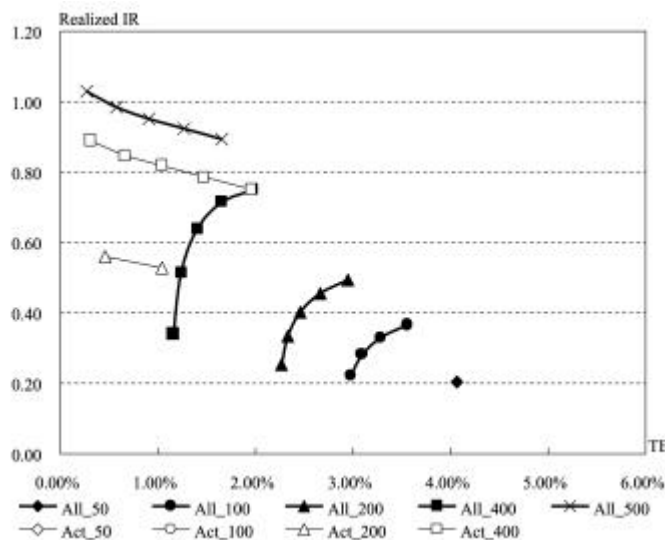
Next, we discuss how active ability is influenced by the number of issues held. As is the case where there is no weight constraint on issues included in portfolios, Figure 6 shows the relation between realized IR and active risks when “n” (number of issues in the investment universe) is changed in equation (4). In addition, another case is illustrated to compare the effects made by non-held issues. It transpires that issues not to be held, are held at benchmark weights, while other issues are actively held. This is the result of equation (4’). Figure 7 shows similar results from equations (5) and (5’) where there are non-negative constraints and a 5% upper limit.

Figure 6 Effects on IR by Constraints of Issues Held (1) [Realized active returns with no weight constraint]



Note: All_50, All_100, All_200, All_400, and All_500 are cases where the shown number of issues are invested in by the portfolios. Act_50, Act_100, Act_200, and Act_400 are cases where all issues are held in portfolios which actively hold 50 issues, 100 issues, 200 issues, and 400 issues, respectively, while the rest are held at the benchmark weight. And, TE means active risk and realized IR shows r/TE .

Figure 7 Effects on IR by the Constraint of Issues Held (2) [Realized active returns with weight constraint(non-negative and 5% upper limit)]



Note: All_50, All_100, All_200, All_400, and All_500 are cases where the shown number of issues are invested in by the portfolios. Act_50, Act_100, Act_200, and Act_400 are cases where all issues are held in portfolios which actively hold 50 issues, 100 issues, 200 issues, and 400 issues, respectively, while the rest are held at the benchmark weight. And, TE means active risk and realized IR shows r/TE .

Now, we discuss the different effects occasioned by the number of issues held where there is no weight constraint (Figure 6). All_50, All_100, All_200, All_400, and All_500 in the following diagrams are cases of investing in the shown number of issues. Act_50, Act_100, Act_200, and Act_400 are cases where all the issues are held, while 50, 100, 200, and 400 issues are held on an active-operation basis, and other issues at benchmark weights. When the number of issues held in a portfolio is 500, realized IR is constant, irrelevant to target active return “t” and TE. This is same as where there is no weight constraint as described in the former section. Also, the realized IR level is constant, irrelevant to “t” and TE, although the realized IR level itself lowers where a certain portion of the issues are held at the active weight and the rest at benchmark weights. Of course, the realized IR level becomes low. This is because if a smaller number of issues are held actively, the constraint becomes more strict.

The tendency is quite different from where a portfolio does not include all the issues consisting of the benchmark. The result: the higher “t” and TE become, the higher realized IR becomes. Here is the interpretation of the phenomenon. If the number of issues held is limited, the issues not to be held are actively underweighted against benchmark weights. To set them so as not to be held generates active returns and active risks. Such non-holding constraints account for most of the active factors when the increase in “t” relatively weakens the strength of the effect. This turned out to show the seemingly strange result where the higher “t” and TE are, the higher realized IR becomes. The realized IR level lowers because the smaller the number of issues held in a portfolio, the more significant the effect of the non-holding constraints becomes. When looked at from the viewpoint of realized active return levels, the smaller the number of issues held, the higher active returns tend to be. Thus, the effects on

portfolio construction of “issues not to be held” may work to lower active operational ability, as they cannot diversify active risks very well.

Now, we discuss the case of non-negative constraints and a 5% upper limit (Figure 7). If 500 issues are held in a portfolio, the realized IR lowers if we set the target active return “t” higher. This is the same result as the analysis discussed in the previous section. Furthermore, when a certain portion of the 500 issues is held at an active weight, realized IR lowers as “t” increases. This is due to the impact of non-negative constraints and upper limits. However, when one compares All_200 and Act_200, All_200 has the higher realized IR with lower risks. This is because in the All_200 case, one cannot decrease risk due to the issues not held, resulting in high risks and decreased efficiency. In other words, if one holds “issues not decided actively” at the benchmark weight, one can decrease risk and maintain a high IR. These results can explain why EI fund operations with low risks are adopted. As Act_50, Act_100, and Act_200 cannot realize the target portfolio at certain “t” levels, such portions are omitted in the diagram.

Next, if a portfolio does not hold all the issues comprising the benchmark, the higher “t” and TE become, the higher realized IR becomes. This is the same as the case of no weight constraint. The same interpretation of the case of no weight constraint can be applied to this case. If weight constraint is added to the non-holding constraint, the total constraint becomes bigger than just the non-holding constraint. Thus, even if one increases “t,” realized IR improves less moderately than in the case of no weight constraint. If the number of issues held becomes smaller, realizable portfolios which can satisfy the constraint become more limited. Thus, the unrealizable portfolios of the All_50 and All_100 cases are not shown in the diagrams. Often in actual active operations, the number of issues held is considerably limited and non-negative constraints and upper/lower limits are set for active weights. In these cases, one can say that one might not be able to sufficiently increase operational efficiency unless one increases TE substantially.

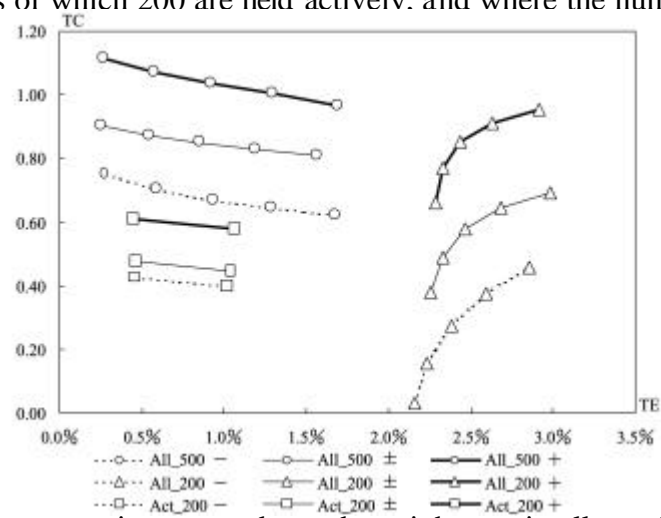
4.3 Effects of size factors

Finally, to observe the effects of non-negative constraints in more detail, we confirm the effects of non-negative constraints when there is a size-factor effect, assuming a certain market development where the (size) size factor can explain some of the active returns.

Figure 8 compares the results where the number of issues held is 200, where the number of issues held is 500 issues of which 200 are held actively, and where the number of issues held is 500 issues all of which are held actively. The simulations were run into the following three returns (small-cap effect, large-cap effect, and benchmark return) and the relation between TC and TE. The results are categorized as follows: All_500 ±, All_200 ±, and Act_200 ±. Large-cap issues have higher active returns (small-cap effect) and small-cap issues have lower active returns (large-cap effect). For the rest of the cases, we show the relation between TC and TE.

We can confirm with the simulation that large-cap issues can be overweighted maximally at the relatively large benchmark weight. Thus, TC will not fall much. Thus, non-negative constraints have a stronger effect on TC than TE. This is because large-cap issues cannot be overweighted up to the upper limit and large-cap issues can be underweight maximally at the relatively large benchmark weight. Thus, TC will not fall much. Thus, non-negative constraints have a stronger effect on TC than TE.

Figure 8 Effects by Size Factor of Non-negative Constraints (Realized active Returns)



Note: TE, All_500 ±, All_200 ±, and Act_200 ± are cases in which the number of issues is 500. Act_200 is where the portfolio holds all issues of which 200 issues are held actively and the remaining are held at the benchmark weight. TE means active risk and TC value is calculated by equation (2).

asymmetric effects, depending on the market situation where large-cap issues or small-cap issues rise.

5. Conclusion and Issues for the Future

In this article, we attempted to measure the effects of various constraints on portfolio construction in terms of IR, the operational ability of active operations. A similar study was made by Grinold and Kahn (2000). In this article, however, we obtained the following new insights, considering not only non-negative constraints, but also weight constraints, such as upper/lower limits, and the correlation between returns before/after the fact related in terms of IC and “issues not to be held” in portfolios among issues comprising the benchmark.

First, non-negative constraints potentially and significantly lower portfolio construction ability (TC). On the other hand, it was confirmed that upper/lower limits lowers efficiency on the frontier before they are used for portfolio construction but efficiency improves marginally on the frontier after they are used for portfolio construction. If there is no upper/lower limit, as active returns are estimated to have extremely large absolute values, sometimes extremely large active weights are placed through the optimization process. As their realized returns are not necessarily large values, performance is negatively influenced. On the other hand, as Frost and Savarino (1988) and Jagannathan and Ma (2002) pointed out, these extreme weightings can be avoided by setting upper/lower limits. It is possible that such alleviates the effects on performance and improves operational efficiency. It was also confirmed that such effects depend on accuracy (IC) and that the smaller IC becomes, the more conspicuous the effect of improving operational efficiency by upper/lower limits becomes. It was assumed that if the variance of cross-section distribution of active returns is bigger, the effect must be stronger. The simulation results, however, show that they largely depend on the target active return levels of portfolios. In the case of small variance, upper/lower limits affect portfolio construction less negatively. One has to, however, take extreme positions to achieve the same target return “t,” compared to large variance cases. It seems that these effects reduce portfolio construction ability (TC).

Next, where a portfolio does not hold all issues comprising the benchmark, one realizes higher IR if target active returns and active risks are set higher. This can be explained as follows. The constraint restricting the holding of certain issues becomes a big constraining factor when the target active return is low. However, as the target active return becomes higher, the effects weaken. Furthermore, the smaller the number of issues held becomes, the stronger the effects of non-holding constraints become. The level of realized IR lowers. On the other hand, the realized active return level tends to become higher. Thus, when there are “issues not to be held,” the effects on portfolio construction can reduce active operational ability due to the insufficient distribution of active risks. On the contrary, this means that risks can be reduced and lower efficiency avoided by holding issues other than actively-held ones at the benchmark weight. This provides the ground for EI operations.

We also analyzed the effects of non-negative constraints where size factors exist. The simulation results confirmed the following. The stronger small-cap effects, the greater portfolio construction ability (TC). And, operational efficiency tends to increase. This can be also explained as follows. In the large-cap stock market, large-cap issues can be overweight up to the upper limit, but small-cap issues cannot be much underweighted due to non-negative constraints. This lowers TC. On the contrary, in a stock market where small-cap effects are strong, small-cap issues can be overweight up to the upper limit and large-cap issues underweight maximally at the big benchmark weight. Thus, TC has little room to fall. Therefore, non-negative constraints can have asymmetrical effects, depending on market developments, such as on markets for large-cap stocks and small-cap stocks.

The above results are the conclusion derived from the simulation set within the assumed cases. Here, we should point out the possibility that another conclusion could be deduced from assuming various other factors not considered in this article. First, in this analysis, costs are not considered at all. Specific fund sizes are not assumed, either. In particular, if funds are huge, enormous costs may be incurred. In this case, the effects at the size factor would be different. In other words, it is assumed that TC in the small-cap stock market may not outperform TC in the large-cap stock market. Furthermore, given the research costs needed to generate , it can be a non-efficient task to estimate of thinly-traded small-cap issues with enormous market impact at the same accuracy as that of other issues. In terms of the effects of the constraint on number of issues held, when the number of issues held is increased, the cost associated with rebalancing the fund cannot be ignored. To avoid unnecessary complexity in this article, our analysis did not consider these effects and they remain to be addressed in the future.

Finally, the simulation in this article indicated several useful possibilities. However, our discussions were for cases using estimated values, such as and risk which had already been used in existing operations. Most important for portfolio operations is to improve operational efficiency by increasing the number of issues to be researched and improving accuracy, not to mention making efforts to improve operational efficiency.

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It should be noted that the opinions contained herein are solely those of the authors and do not necessarily reflect those of The Sumitomo Trust & Banking Co., Ltd.

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Feature Article – Individual investors and investment trusts

Individual Investor Behavior

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1. Introduction
2. The Irrational Nature of Buying and Selling Behavior
3. A Hypothesis to Explain Investor Buying and Selling Behavior.
4. Investigating the Hypothesis
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Although institutional aspects in Japan have been improved to encourage the holding of investment trusts by individual investors, it cannot yet be said that investment trusts have permeated the individual investor market. One reason for this is that the improvement of related systems was conducted without sufficient understanding of the reasons behind the investment behavior of individual investors.

By focusing on the buying and selling of investment trusts by individual investors, and examining such behavior from a behavioral finance perspective, phenomena such as “realize profits quickly when in the black, but defer taking losses when in the red” and “selecting funds based on the level of unit price” can be observed. If these characteristics of buying and selling behavior by individual investors are taken into consideration, it is clear that many investment trusts have room to rethink the way in which they manage their funds. In addition, to promote the holding of long-term positions in investment trusts, purchasing methods such as the dollar-cost averaging method may be effective. This report conducted an analysis focusing on investment trusts. However, other assets including savings deposits and shareholdings must be considered when analyzing individual asset management decisions. Sales methods applied to investment trusts should be considered in the light of the above points, on which subject future debate is also necessary.

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1. Introduction

The investment trust environment in Japan has changed considerably over the last few years and opportunities for individual investors to become involved in investment trusts have increased considerably, particularly as a result of encouragement from institutional changes. Before December 1998, only securities companies were permitted to sell investment trusts. However, since that date, when their sale was also permitted at banks and other financial institutions, the number of outlets handling investment trust business has increased dramatically. Currently, there are over 15,000 banks selling investment trusts, without including other financial institutions in the count. Furthermore, in July 2001, following the introduction of exchange traded funds, it has become possible to purchase index investment funds at a low cost.

In addition, since the defined contribution pension plan was launched in October 2001, individual investors have been forced to choose between various financial products including investment trusts. Through the sale of investment trusts at banks and defined contribution pension plans, the balance of funds held in investment trusts has increased significantly¹³. In the long term, no one denies that the balance of funds will continue to increase.

However, looking at the situation as it stands now, the total value of investment trusts held by individual investors is 28.5 trillion yen (as of the end - March 2003), which accounts for only 2% of all assets held by individuals, or equivalent to just 5% of the 547.9 trillion yen of individual assets held in time deposits (as of end - March 2003). Therefore, one cannot yet say that investment trusts have become established as a tool of individual investment.

Although institutional changes have been made which should support the holding of investment trusts by individuals, efforts to attract individuals to investment trusts have not been successful because such efforts have been made without a full understanding of the investing behavior of individual investors. In reality, although we can see much research and many theses dealing with the subject of the failure of investment trusts to gain ground among individual investors, most of these studies have placed emphasis on analyzing fund performance. Very little research has directly attempted to address patterns of investment trust buying and selling behavior.

In this report, we have focused on the behavior of individual investors when buying and selling investment trusts. In particular, we have conducted a behavioral finance analysis¹⁴. Furthermore, we have asked what individual investors look for in investment trusts, and we have considered how investment trusts should be provided in the future. Our investigation focuses on publicly - offered open investment trusts. The reason for this is that, based on statistics from the Investment Trust Association, around 90% of such investment trusts are held by individual investors. While individual investors also hold public and corporate bond investment trusts, due to changes in various related systems, it is likely that the difference between such investment trusts and equity investment trusts will narrow.

¹³ In the six months up to June 2003, the balance of funds in investment trusts under defined contribution pension plans increased from 30.0 billion yen to 80 billion yen (DC fund balance, excluding "seed money.")

¹⁴ Buying and selling of investment trusts reflects not only the volition of the investor, but may also be affected by the sales policy of the company selling shares in the trust. However, even if the vendor has some influence, as long as the final decision is made by the investor, we believe that investor intentions can be understood through an analysis of past buying and selling data.

2. *The Irrational Nature of Buying and Selling Behavior*

(1) **Irrational selling behavior**

Imagine a world where the majority of investors are rational, these investors can make rational decisions, but they do not have a special ability to make decisions concerning the market. Furthermore, they do not have the ability to make asset management decisions regarding individual stocks and bonds. Therefore, they decide to manage their assets through investing in an investment trust. These investors buy investment trusts or increase their holding when expected future return – on - investment is high, and reduce their holdings or sell off investment trusts when expected future return – on - investment is low or negative. In contrast to the case of ordinary stocks and other similar instruments, where the value of shares purchased equals the value of shares sold, in the case of shares in open investment trusts the value of shares issued does not necessarily equal the value of shares redeemed. Therefore, the issuance and redemption of shares in individual investment trusts represent a pure measure of investor demand. When investors expect return on investment to be high, the value of purchases will increase and the value of redeemed shares will decrease. Conversely, when expected return on investment is low, the value of purchases will decrease and the value of redemptions will increase¹⁵.

Because these investors do not have any special ability to make decisions about the market, we can assume that their expected return on investment is likely to move almost in tandem with recent fluctuations in the price of the assets underlying the investment trust. Therefore, as the unit price of shares in the investment trust increases, the amount of purchases will increase and the amount of redemptions will decrease, and vice versa.

However, those in the industry often point out that there are also large numbers of redemptions when the market is rising. This can be confirmed through the data. Chart 1 shows the average performance of investment trusts in the “Domestic Equity/Diversified”¹⁶ category of the NRI-FPI¹⁷, the Nomura Institute’s investment trust index. (The index is weighted according to the monetary value of investor holdings in the trust.) The chart then compares this index with the value of purchase and redemption amounts. The chart shows that during the so-called IT bubble period, the amount of both purchases and redemptions increased. The amount of purchases increases as the performance index rises, and decreases as the performance index falls. On this point, observed results are consistent with rational investor behavior.

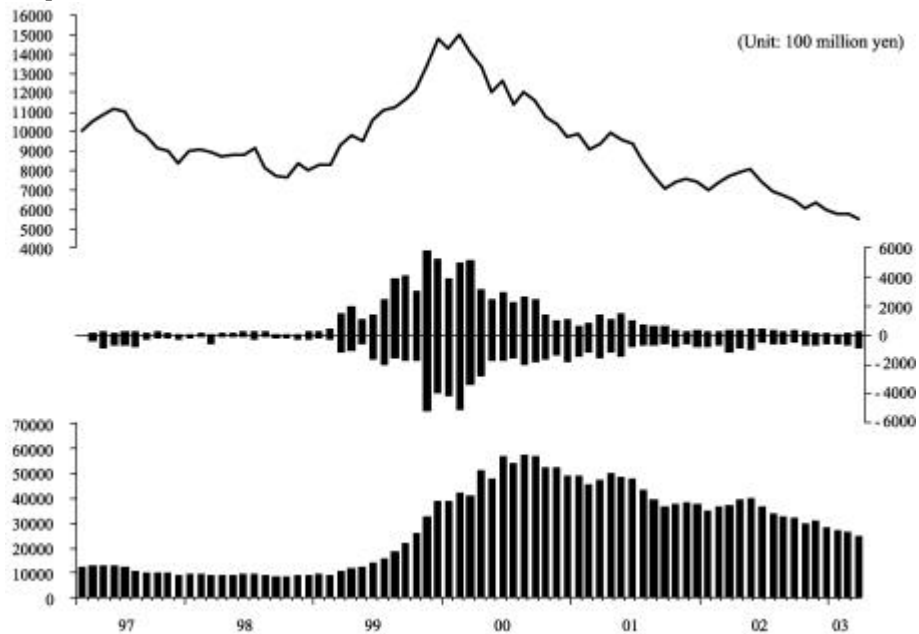
On the other hand, redemption amounts, as with issuance amounts, appear to increase when the market rises and decrease when the market falls. Looking at “Domestic Equity/Diversified” investment trusts as a whole, investor behavior does not seem rational.

¹⁵ As open investment trusts, a type of contract investment trust, as a general rule, permit the issuance of new shares and the redemption of existing shares at any time. If any investor wishes to purchase additional shares in the trust (or redeem existing shares), the investment trust company will comply with such request. Thus, in contrast to ordinary stocks, the value of shares issued (bought) and the value of shares redeemed (sold) is not always the same.

¹⁶ The designation “Domestic/General” is one category among the Nomura Research Institute’s own Fundmark categorization of investment trusts. It is defined as “investment trusts which concentrate on Japanese stocks, are ranked highly in terms of real portfolio weighting, and are not limited by target industry or investment style.” As of March 2003, 291 funds, with combined net assets of 2.5 trillion yen, met the above definition.

¹⁷ “NRI-FPI” is an index which shows returns, outstanding balances, and the issue and redemption of shares in (open) investment trusts. As well as a general index covering the (open) investment trusts market in its entirety, the Nomura Research Institute also compiles more detailed indices based on the various levels of the Fundmark categorization of investment trusts.

Chart 1 The performance of “Domestic/General” of NRI-FPI and value of shares issued and value of shares redeemed



Source: Nomura Research Institute “NRI-FPI”

Note: The top graph is a performance index (March 1997=10,000), the middle one shows the value of monthly share issuance (positive y-axis) and monthly redemptions (negative y-axis), and the bottom graph shows net asset value. It should be noted that taking the month of purchase as the first month, NRI-FPI counts new investment trust purchases from the beginning of the third month, and as such, initial payments are not included in purchase amounts.

Another comment regarding investor behavior which is often repeated by those in the industry is that “redemptions increase once the unit price exceeds 10,000 yen.” Rational investors should make decisions as to whether or not to redeem their shares based on the future expected rate of return. Whether the unit price is above or below 10,000 yen should not affect redemption decisions. Therefore, this behavior also falls outside the scope of rational investor behavior.

(2) Irrational purchasing behavior

Consider the case of a rational investor investing in an active fund. An active fund is a fund which aims to secure a higher rate of return than its benchmarks. Particularly, in the case of investment trusts, in order to emphasize the characteristics of each individual fund, it is commonplace for each fund to exercise unique management strategies. Looking at a company prospectus, one can conceptually understand these characteristic strategies. However, one cannot know how concretely effective these strategies will be in bringing about above average returns. Therefore, the rational investor is likely to refer to the past performance of the funds and make comparisons before deciding which investment trust to buy into. Such a rational investor would rarely buy funds from newly established funds, but, for the most part, would buy shares in funds which had already been in operation for some time. Since between one and three years of results are necessary to analyze past performance, rational investors would rarely purchase from funds within one to three years of their establishment.

Chart 2 shows the amount of shares issued in “Domestic Equity/Diversified” funds according to the number of years which have passed since the establishment of the fund. As seen in the chart, the largest amounts of shares are issued by young funds. In particular, a lot of shares are issued by funds that are less than one year old. If the younger a fund was, the better it performed, then this behavior could be explained as rational. Of course, it is difficult to accept that such a tendency exists, and therefore such behavior must be considered to be contrary to the actions of the rational investor. Furthermore, such phenomena shows that the basic strategies of investment trust firms, namely to perform better than similar funds, and thus gradually expand the assets under their management and increase revenue, are not necessarily consistent with reality.

Chart 2 Number of years since establishment of fund, and total value of shares issued

Fiscal year	Less than 1 year	From 1 to 3 years	From 3 to 5 years	From 5 to 8 years	Over 8 years
1997	1.246	1.062	187	701	4
1998	3.474	1.008	670	204	2
1999	41.358	18.224	11.916	379	1
2000	24.391	10.263	3.247	424	3
2001	2.922	3.277	1.967	964	0
2002	1.636	717	1.584	762	0

Source: Nomura Research Institute.

Note: Unit: 100 million yen. Chart figures refer to “Domestic/General” funds under the Nomura Research Institute’s Fundmark classification scheme.

The above type of investor behavior is not just irrational, it also inhibits the healthy development of investment trusts. This must be considered a serious problem. In the following chapter, we will clarify, principally from a behavioral finance perspective, the criteria on which such investor behavior is based. We will then debate some possibilities for encouraging the development of investment trusts.

3. A Hypothesis to Explain Investor Buying and Selling Behavior

This chapter examines investor decision-making processes regarding buying and selling, and attempts to establish a hypothesis.

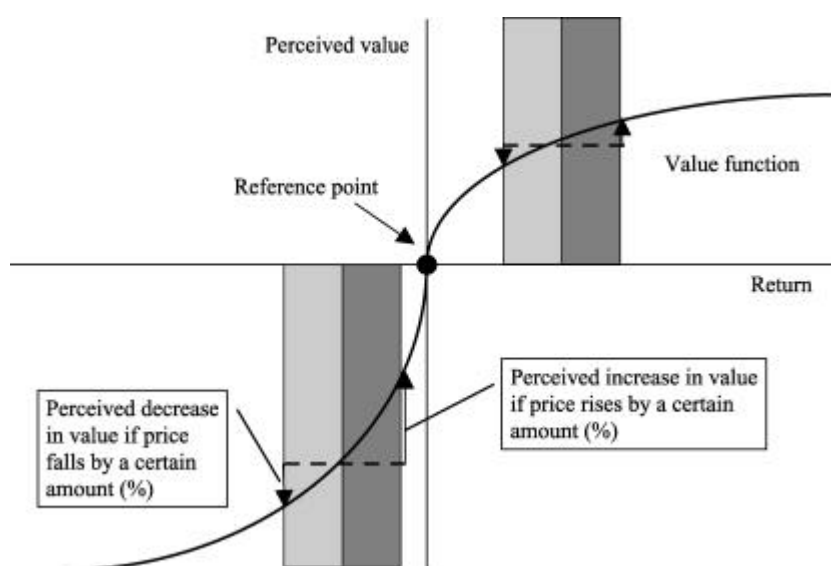
A hypothesis regarding selling behavior - Disposition effect

In behavioral finance, the following characteristic of investor behavior has been observed. When investments have produced a profit, rather than try to obtain further profits, investors prefer to realize their current profits. However, when investments are running at a loss, rather than realize the loss, investors hold on to their investments in the hope of reducing their losses despite the risk of further losses. “Therefore when the price of a security rises and profit is recorded, investors tend to sell the security quickly to realize their profits. However,

if the price of a security falls and it is producing a loss, investors tend to postpone the sale of the security and keep holding onto it.”¹⁸ This is one manifestation of the disposition effect.

The disposition effect is explained by Kahneman and Tversky’s prospect theory as follows. Profit and loss resulting from a decision and subjective perceptions of value are related by the value function V as shown in Chart 3. The origin of the graph is termed the reference point. Perceptions of value are based on this point. It is often referred to as the purchase price, but it can also refer to any other salient price. To the left of the reference point, the value function (V) is convex, whereas to the right of the reference point, it is concave. Furthermore, the gradient of the function’s curve is steeper to the left of the reference point than to the right.

Chart 3 Value functions according to the prospect theory



Source: Nomura Research Institute

Note: Investors consider possible future price fluctuations of a certain percentage and compare by how much the value function would increase due to rise in price of that percentage with how much it would decrease due to a fall. If they consider the increase in value accompanying a price rise to be the greater of the two, they will retain the security concerned. If they consider the decrease in value accompanying the price fall to be the greater of the two, they will sell it.

According to the theory, investors will continue to hold securities if a given fluctuation in price produces a higher expected value, and will sell securities if a given fluctuation in price produces a lower expected value. In other words, if the probability of the price of the security rising is the same as it falling, the increase in the value function ($V(p + \Delta p) - V(p)$) which

¹⁸ Joachim Goldberg and Rudiger von Nitzsch, “Behavioral Finance”

occurs if the price rises ($+p$), is compared with the decrease in the value function ($V(p) - V(p - p)$) which occurs if the price falls ($-p$). If $V(p + p) - V(p)$ is greater than $V(p) - V(p - p)$, then the investor will continue to hold the securities. Conversely, if $V(p) - V(p - p)$ is greater than $V(p + p) - V(p)$, then the investor will sell the securities. As is apparent from looking at the curve of the value function V , for a fluctuation of a given degree, the increase in the value function ($V(p + p) - V(p)$) is the greater on the left of the reference point, while the decrease in the value function ($V(p) - V(p - p)$) is greater on the right of the reference point. This is why we observe the phenomena of early selling of securities when the price rises and profits are generated, and the holding of securities when the price falls and losses are generated.

That completes the explanation of the disposition effect according to prospect theory. Next, by applying prospect theory to investment trusts and examining the relation between unit price and redemption rate, we can postulate the existence of certain characteristics as outlined below.

The relation between unit price and redemption ratio

- a) When the unit price is lower than the reference point, investors will not try to sell their shares in the trust, and the redemption rate will be low.
- b) When the unit price is higher than the reference point, the redemption rate will be high.
- c) In particular, when the unit price is higher than the reference point, the redemption rate will gradually decrease as the unit price continues to increase¹⁹.

In this report, we state the potential hypothesis that “selling behavior by individual investors is heavily influenced by the disposition effect, and that an investigation of the relation between the unit price and redemption rate supports this assumption.”

In reality, the phenomenon, as mentioned in the previous chapter, of redemption rates increasing when unit prices rise above 10,000 yen, can be explained in terms of the disposition effect. 10,000 is not just a salient, round figure, but it is also likely to be close to the purchase price²⁰, and therefore often becomes the reference point.

A hypothesis regarding selling behavior - Shifting of the reference point

According to Kahneman and Tversky, there are times when the reference point will change. If one holds a security which has a current market value significantly in excess of the purchase price, then the reference point may shift from the purchase price to the recent market price. In such cases, if the price of the security falls, then even if the price of the security is still above the purchase price, the investor will feel psychologically that he has made a loss. The investor will then continue to hold onto the security, even if the failure to sell exposes him to the risk of further declines in price. In other words, when the unit price is

¹⁹ *If the unit price is higher than the reference point, then as the unit price increases, the difference between $V(p) - V(p - p)$ and $V(p + p) - V(p)$ becomes smaller, resulting in a gradual reduction in the redemption rate.*

²⁰ *As stated above, issues of investment trusts are concentrated in those funds which have only just begun operation. Therefore, in many cases, the purchase price is close to the 10,000 yen price at the time of the initial issue.*

significantly in excess of the purchase price, a reduction in risk avoidance behavior is observed²¹.

Thus, the second hypothesis postulated in this chapter is that “The phenomenon of reference point shift can also be seen with investment trusts.” The disposition effect simply states that when valuation gains are being recorded, redemption rates will be high. It cannot explain the phenomenon mentioned in the previous chapter that redemption rates may be low during periods of recent negative return. The observation that, even when the unit price of the security is relatively high, redemption rates are low during periods of low return, can only be explained by including the concept of a shifting reference point in the analysis.

A hypothesis regarding purchasing behavior

In newspapers and financial magazines, investors considering purchasing investment trusts often ask the question, “Should one avoid buying investment trusts with a low unit price?” A low unit price seems to suggest that the fund has low return since being issued, and leads to the perception of a “bad fund.” However, this way of thinking does not consider movements in the fund’s benchmarks during that time. In response to the above questions, analysts have answered that one cannot evaluate the performance of a fund without comparing it to benchmarks and other similar funds, and that simply because a fund’s unit price is low does not imply that it is performing poorly. Although some investors may understand such clear explanations that the performance of a fund and its unit price are not directly related, it may still be the case that a large number of investors will avoid investment trusts with low unit values.

This is our third hypothesis. If this hypothesis were proved to be true, it could be that the phenomenon of share issues concentrating around the period just after launch was due to the continued declines in the stock market over the last ten or so years. Perhaps if stock markets had been rising during this period, we might conversely have seen that issues of shares in funds were fewer the newer the fund.

In the following chapter, we will attempt to explain our methods for attempting to verify the above hypothesis.

4. Investigating the Hypothesis

The verification methods used in this and the following chapters are analyses of individual investment trusts. Funds which have already been redeemed are also used as samples if they were active at the time of each analysis, in order to eliminate bias. Those funds which were used in the analysis below all meet the following criteria.

? The funds must be classified as “Domestic Equity” by the Nomura Research Institute (not including index funds)²².

²¹ Barberis, Huang, and Santos argue that when recent rates of return have been higher, risk avoidance behavior can be observed.

²² There were 303 funds which matched the criteria, with a combined total of 3.5732 trillion yen in assets (as of March 2003).

- ? At the time selected for analysis, the funds must have been in operation for more than one year. This is because redemptions are rare immediately after the establishment of a fund, and also because returns over the past year are necessary to test hypothesis three.
- ? At the time of the analysis, the funds had net assets of over 1 billion yen. This is not just due to monetary importance, but also because funds with small net assets have extremely large issue ratios (the amount of shares issued over a given period of time divided by average net assets for the same period) and redemption ratios (the amount of shares redeemed over a given period divided by average net assets for the period) and also because of other technical reasons.

The analysis was conducted from April 1998 to March 2003.

A hypothesis regarding selling behavior - Disposition effect

For the purpose of this analysis, we assume the reference point to be the original price of one unit of the fund (usually 10,000 yen or 1 yen), or the average purchase price. Since the average purchase price for beneficiaries of the fund cannot be exactly determined, we will use average trust value as a proxy²³.

Our analysis compares the unit price of the fund at the time of the analysis with the reference point, and plots this difference against the redemption ratio during the following

²³ A average trust value is deemed the average acquisition price, and is calculated using the formula below. Note that as of April 2004, the average trust value was no longer available to the general public. Therefore, in investigating our hypotheses, we calculated the average value of entrusted assets from the unit price of the fund, net assets, and data regarding daily issue and redemption rates. Therefore, average trust value figures after April 2004 may include a small error term.

$$C_{i,t} = \frac{N_{i,t-1} \times C_{i,t-1} - N_{i,t}^R \times C_{i,t-1} + N_{i,t}^S \times P_{i,t-1}}{N_{i,t-1} - N_{i,t}^R + N_{i,t}^S}$$

$C_{i,t-1}$: Average purchase price of fund i on day t

$P_{i,t}^S$: Unit trading price of fund i on day t

Note that after April 2004, this is the unit price.

$N_{i,t-1}$: Number of beneficiary accounts for fund i on day t

$N_{i,t}^R$: Number of accounts redeemed for fund i on day t

$N_{i,t}^S$: Number of accounts issued for fund i on day t

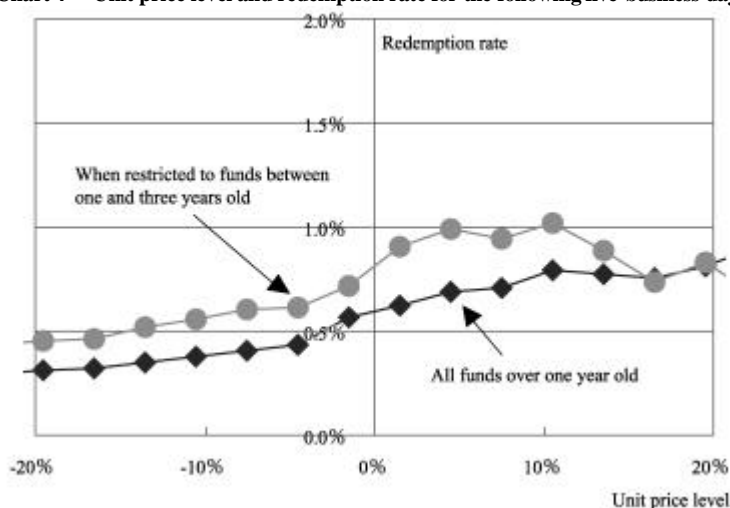
five business days (amount of redeemed shares divided by average net assets of the fund over those five business days). To avoid overlap in our periods of redemption rate analysis, analysis points were placed at five-day intervals. In addition, we termed ($[\text{ratio of the current unit price to the original unit price of the fund}] - 1$) the “unit price level,” and ($[\text{ratio of the average purchase price to the unit price}] - 1$) the “valuation profitability ratio.” (The original unit price is usually 1 yen or 10,000 yen.)

We used this as a proxy instead of the ratio of the reference point to the unit price.

Chart 4 shows the relation between the “unit price level” and the redemption rate over the five following business days. Chart 5 shows the relation between “valuation profitability ratio” and the redemption rate over the five following business days.

This chart shows 14 equal groups with valuation profitability groups between -20% and +20%. The median redemption rate for each group is plotted²⁴.

Chart 4 Unit price level and redemption rate for the following five business days.



Source: Nomura Research Institute.

Note: Data includes all funds classified as “Domestic equity” by the Nomura Research Institute (excluding index funds). The graph plots the relation between the rate of appraisal profit or loss and the redemption rate. The unit price level ($[\text{Unit price divided by Original principal}] - 1$) was divided into 14 equal groups between -20% and +20%. The median redemption rate for each group is plotted.

Firstly, looking at Chart 4, while the redemption rate is clearly higher when the unit price level is higher, the tendency for the redemption rate to increase rapidly as the unit price level moves above zero can also be seen²⁵.

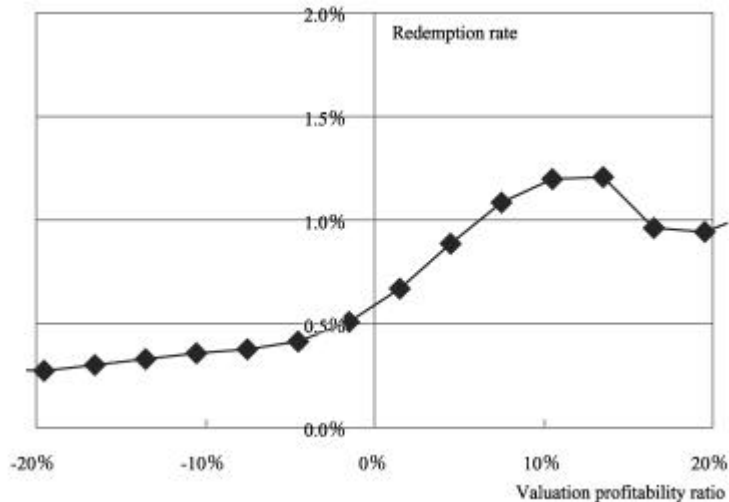
²⁴ The median for each group is only plotted when the sample size exceeds 30.

Next, an examination of Chart 5 allows the following conclusions:

- a) When the rate of appraisal profit or loss is negative (unrealized loss), the redemption rate is comparatively low, and the rate does not increase with slight reductions in the unrealized loss.
- b) As the unrealized loss approaches zero, the redemption rate starts to increase. It peaks at an rate of appraisal profit or loss of around 10%. Above 10%, the redemption rate starts to decrease as the rate of appraisal profit or loss increases.

The phenomenon observed in a) is that of deferring the sale of securities with an unrealized loss. In b), the rise in the redemption rate that accompanies the rate of appraisal profit or loss's rise above zero shows investors' tendency to rush to secure profits. Both a) and b) show results as predicted by the postulated relation between unit price and redemption ratio.

Chart 5 Rate of appraisal profit or loss plotted against the redemption rate for the following five business days.



Source: Nomura Research Institute.
 Note: Data includes all funds classified as “Domestic equity” by the Nomura Research Institute (excluding index funds). The graph plots the relation between the rate of appraisal profit or loss and the redemption rate. The unit price level ($[\text{Unit price} / \text{average acquisition price}] - 1$) was divided into 14 equal groups between -20% and +20%. The median redemption rate for each group is plotted.

Note that up until March 2003, the average trust value was legally treated as an acquisition price. Therefore, if the rate of appraisal profit or loss became positive (the unit price was greater than average trust value), one could interpret the observed selling behavior to be the result of an investor attempting to avoid taxation. However, from April 2000 onwards, the

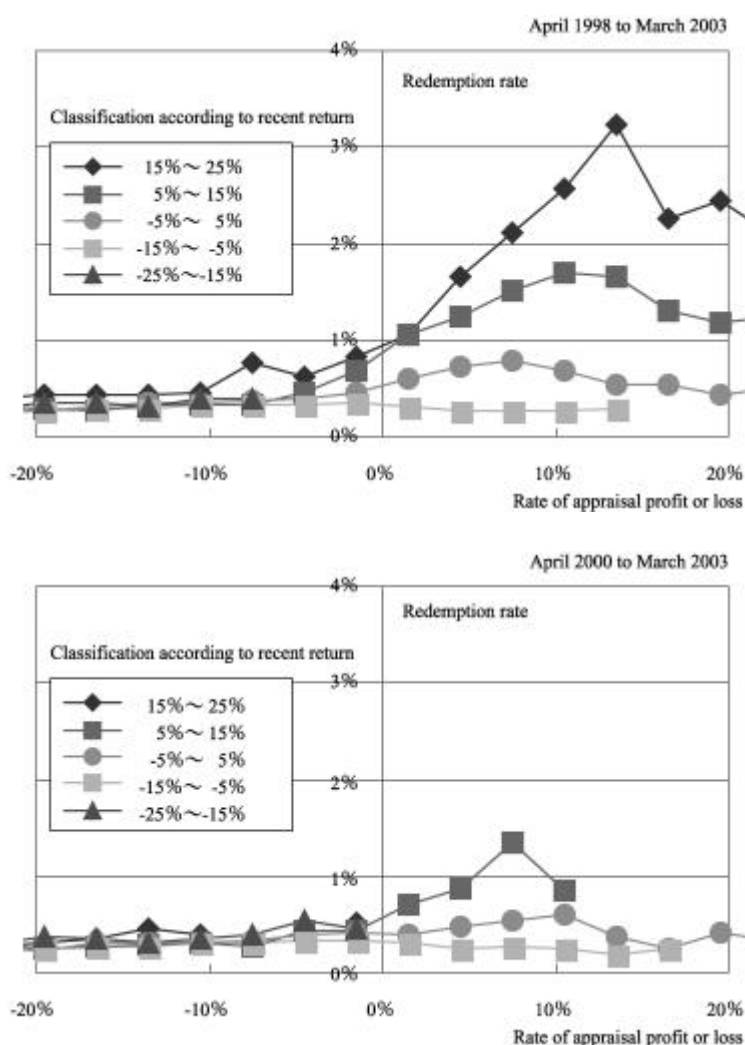
²⁵ Note that if the examination of the relation between the unit price level and the redemption ratio is restricted to funds which are between one and three years old, then, as shown in Chart 4, although the relation is not as clear as the relation between the rate of appraisal profit or loss and the redemption rate, results as predicted by the disposition effect can still be observed.

same tendency is apparent, and this cannot be explained as selling based on the desire to avoid tax. We will refer to this later in our verification of hypothesis 2.

A hypothesis regarding selling behavior - Shifting of the reference point

In Chart 6 (upper panel), funds are divided into five groups according to their return over the 60 most recent business days (15%~25%, 5~15%, -5~5%, -15%~5%, -15%~-25%) and the rate of appraisal profit or loss is plotted against the redemption rate for each group. As with Chart 5, there are 14 equal divisions in the rate of appraisal profit or loss between -20% and +20% and the median redemption rate for each division is plotted.

Chart 6 Rate of appraisal profit or loss plotted against the redemption rate for the following five business days.



Source: Nomura Research Institute.
 Note: Data includes all funds classified as “Domestic equity” by the Nomura Research Institute (excluding index funds). Funds are divided into five groups, depending on their return over the last 60 business days. The rate of appraisal profit or loss is plotted against the redemption rate for each of the five

groups. There are 14 equal divisions in the rate of appraisal profit or loss between -20% and +20%. The median redemption rate for each division is plotted.

The upper graph analysis is for the period between April 1998 to March 2003, and the lower graph is specifically from the period beginning April 2000.

From Chart 6 (upper panel), we can draw the following conclusions:

- a) When the rate of appraisal profit or loss is negative (unrealized loss), irrespective of the fund's return over the most recent 60 business days, the redemption rate will remain low.
- b) When the rate of return is greater than 5%, the redemption rate rises as the rate of appraisal profit or loss moves from negative into positive territory. The redemption rate reaches a peak, then gradually decreases.
- c) Note that when the rate of appraisal profit or loss is in positive territory, the lower the rate of return over the 60 most recent business days, the lower the redemption ratio. In particular, when the cumulative rate of return over the 60 most recent business days is negative (-15%~-5%), the redemption rate is low, around the same level as observed when the rate of appraisal profit or loss is negative.

From a) and b) we can conclude that, when redemption rates are analyzed according to recent rates of return, as was the case for hypothesis 1, the relation between the unit price and redemption rates exhibits the same results as were predicted. Regarding c), from the observation that redemption rates remain low particularly when the accumulated return over the most recent 60 business days is negative (-15%~-5%), the hypotheses that reference points shift, and that falls in price after a reference point shift will lead to lower redemption rates, appear to be supported.

Furthermore, Chart 6 (lower panel) restricts the period of analysis to after April 2000, when the tax system based on average trust value systems was abolished. During this interval, there were no extended bull market periods; therefore, although the tendency cannot be seen as clearly as in the upper panel, the above observations a) to c) appear to hold for this period, based on limited observations. This shows that when the rate of appraisal profit or loss becomes positive (the unit price exceeds the average price of investment in the trust), the increase in redemptions is not necessarily due to the motivation of tax avoidance, and may be an artifact of the disposition effect.

A hypothesis regarding purchasing behavior

For each of the following components relating to investment trusts, standardized factor values were calculated for each point of analysis, and a regression analysis of share issue factors over unit price factors and return factors was conducted.

? Issue rate

Issue rate for the current month (Issuance amount \div Monthly average of assets in trust)

? Return

Return over the 12-month period up to the previous month

? Unit price level

The ratio of the original principal for one unit of the trust to the unit price at the end of the previous month.

Note that, as can be seen in Chart 2, depending on the number of years that have passed since the establishment of the fund, the amount issued can vary greatly. Therefore, funds are divided into four groups according to the number of years that have passed since their establishment. (1~3 years, 3~5 years, 5~8 years, over 8 years) and each is analyzed separately.

Looking at the results of the regression analysis for share issues and return or unit price (Chart 7), when all funds are included in the analysis, the issue rate rises in concert with the past rate of return and the unit price level. Furthermore, the relation between the issue rate and unit price level is stronger than the relation between the issue rate and past rate of return. In addition, the separate analysis of funds classified by years since establishment shows the same tendency, with the exception of funds which are over eight years old. These results therefore show that, even among funds that were established at around about the same time, funds with a higher unit price have a higher issue rate. In other words, investors have a tendency to purchase funds with a higher unit price, thus our hypothesis is supported.

Furthermore, an analysis of the intercept of the regression line shows a negative relation for funds which are over five years old. This shows that if the unit price and past return are almost the same, the issue rate will vary depending on the number of years since the fund's establishment, and once funds are over five years old, the issue rate will decrease.

Chart 7 Relation between issue rate, and past return and unit price level

Years in operation	Tranche		Return over the past 12 months		Unit price level	
	Coefficient	t value	Regression coefficient	t value	Regression coefficient	t value
All funds	0.000	0.000	0.051	5.002	0.188	18.251
1-3 years	0.060	4.563	0.035	1.973	0.240	13.056
3-5 years	0.060	3.219	0.085	3.761	0.151	6.187
5-8 years	- 0.131	- 6.067	0.067	3.050	0.167	7.285
Over 8 years	- 0.056	- 2.955	0.086	3.976	- 0.022	- 0.912

Source: Nomura Research Institute

Note: Regression analysis is conducted for the issue rate for a given month against the return for the previous 12 months, and the unit price level (ratio of the unit price to the original principal for one unit of the fund).

From the above data, as can be seen in Chart 2, the reason that the issue rate decreases as the age of the fund increases cannot be explained solely in terms of low unit price. Even if this is taken into consideration, additional share issues still decrease as time passes. In other words, even if the domestic stock market had not been falling over the past ten years, the tendency for investor purchases of funds to decline with the passage of time would still be apparent.

5. Investor Expectations of Investment Trusts

In this chapter, we will examine what kind of fund investors expect, based on the results of the hypothesis verification conducted in the previous chapter. We will also examine implications for the product viability of investment trusts, and the approach to investment trust sales.

Methods for reducing investors' fixation with unit price

According to hypothesis , investors take great account of unit price, and tend to be quick to redeem shares to realize valuation profits. We will not embark upon a full discussion of the benefits of holding long-term positions; however, investors' attitudes as described above do prevent the holding of long-term positions. If we wish to promote long-term investment, it is necessary to find a way of reducing investor fixation with unit price. Although this will not be easy, one method would be to increase the prevalence of purchasing through dollar cost averaging (typically accumulating funds on a regular monthly basis). Because the dollar cost averaging method allows for purchases at set times according to set rules, the level of commitment (the feeling of responsibility for your own decision) at the time of purchase is low. According to behavioral finance studies, the greater the feeling of commitment, the more pronounced loss avoidance behavior becomes. As the dollar cost averaging method does not involve high commitment, it can also be considered to mitigate loss avoidance behavior. Another method of promoting long-term investment is to fix the reference point at a level higher than the purchase price.

Designing products to meet customer inclinations

From the perspective of encouraging long-term investment, there is room to improve the appeal of investment trust products to mitigate the "rush to sell" phenomenon.

In this report, for the most part, we have analyzed active funds which have a high weight of domestic equities. Although the aim of such funds is to realize a higher return than stock indices, as long as these funds contain a high proportion of domestic stocks, they will not be able to avoid a fall in unit price if the stock index falls.

However, as was shown through the verification of the first disposition effect hypothesis, investors are strongly conscious of unit price. For most investors, purchase price is their benchmark, not the stock index. Management policies which assume unit price reductions if stock indices fall significantly are not in line with investor expectations.

Furthermore, the phenomenon of unit price level exerting a strong influence as we saw for hypothesis is also a manifestation of investor reluctance to participate in funds which decrease in value along with market indices.

The above arguments suggest that policies that advocate maintaining a high proportion of equities in the trust portfolio could benefit from review. Perhaps the investment trust market could benefit from more funds which actively manage their portfolio in response to expectations of market performance.

Recently, funds such as "long-short" funds have begun to appear, although they have not expanded to any great extent.

To promote the further adoption of investment trusts, products should not be designed blindly. It is necessary that funds should be developed based on an analysis of investor preferences²⁶, in order to facilitate investor participation.

Further improvement in investor education

Although it is important to provide products which meet investor needs, it is also important to educate investors.

The above assertion that products should be designed to meet investor preferences does not imply that all investor preferences must be taken into account. Much investor behavior is irrational. Yet such irrational behavior may be deeply rooted in the psyche of investor, and attempts to modify such behavior will not succeed easily. Thus, it is imperative that investor education be advanced further.

Investor behavior may be unduly influenced by the prevailing atmosphere. However, acting on intuition can only lead to the repeating of failures and mistakes. As shown in the next chapter, making impulsive decisions based on the prevailing atmosphere results in a tendency to purchase at high prices. Purchases made through the dollar cost averaging method, assuming a typical level of decision-making ability, tend to result in fewer failures. Although this is just one example, it illustrates the necessity of investor education across the nation.

6. Effect of the Dollar-Cost Averaging Method

In the previous chapters, we analyzed the behavior of investors buying and selling investment trusts from a behavioral finance perspective. We explained how investors tend to pay too much regard to purchase price, and unless measures are taken to mitigate that tendency, it will be difficult to encourage long-term investment. Thus, the opinion was put forward that the dollar-cost averaging method may be effective.

It is true that there are criticisms of the dollar cost averaging method. Those criticizing the method state that the rational investor buys when prices are low and sells when prices are high. Thus, it is foolish to buy set amounts at regular intervals over a long period of time. However, for most ordinary investors, it is extremely difficult to buy and sell at the appropriate time.

This can be observed through a simple simulation.

As shown in Chart 1, investor purchases of investment trusts tend to increase as performance increases. Chart 1 shows only “Domestic Equity/Diversified” and most other categories show the same pattern. Therefore, we compared the hypothetical unrealized gains resulting from a purchasing pattern based on the past purchasing behavior of all investors in major investment trust categories (specifically, the amount of monthly purchases is altered according to the total value of investment trust assets), with a purchasing pattern based on the dollar cost-averaging method (a set amount is purchased each month) (Chart 8). The simulation assumes purchasing started in April 1997, and continued until March 2003 using

²⁶ Hypothesis suggests that if the unit price exceeds the purchase price by 20% to 30%, investors will shift their reference point. This tendency can be explained in terms of investors considering their investment a success if the unit price exceeds the purchase price by 20% to 30%. Investors then perceive the future movement of the security as a new investment. In reality, there are many funds, particularly unit-type funds, which cease holding stocks that exceed 12,000 to 13,000 yen per share. These funds can be regarded as having correctly appraised investors' preferences well.

each of the respective methods. Results show that as of March 2003, the dollar-cost averaging method has produced larger appraisal profit or loss than the alternative method²⁷. Furthermore, the periods in which the investment strategy based on the past investment behavior of all investors producing larger unrealized gains than the dollar-cost averaging method are extremely limited. From a financial standpoint, although one cannot say that the dollar-cost averaging method is a sophisticated investment strategy, for the majority of investors, who only have a general ability to make investment decisions, it is very difficult to gain better returns on investment other than are available through the dollar-cost averaging method.

²⁷ *Almost exactly the same results are obtained when the simulation is conducted over other time periods.*

Chart 8 Investment results generated by dollar cost averaging method.

Broad classification	Narrower classification	Dollar cost-averaging method		Past purchasing patterns for all investors purchasing investment trusts	
		Rate of appraisal profit or loss	Number of months	Rate of appraisal profit or loss	Number of months
Domestic equities	Diversified	-37.7%	69/71	-50.5%	2/71
	Style	-28.7%	71/71	-45.3%	0/71
	Industry	-39.5%	71/71	-56.2%	0/71
	Index	-38.0%	20/71	-38.2%	51/71
	Other	-31.5%	71/71	-47.2%	0/71
Overseas equities	Global	-35.3%	71/71	-41.6%	0/71
	Emerging	-26.9%	69/71	-40.3%	2/71
	North America	-47.1%	59/71	-56.2%	12/71
	Asia/Oceania	-26.9%	68/71	-34.1%	3/71
	Europe	-35.9%	66/71	-46.3%	5/71
	Latin America	-30.3%	71/71	-52.0%	0/71
	Mining	52.6%	65/71	37.4%	6/71
Domestic bonds	Domestic bonds	2.4%	61/71	2.1%	10/71
Overseas bonds	Global	15.1%	71/71	9.6%	0/71
	Emerging	13.3%	65/71	7.8%	6/71
	US Dollar	1.4%	71/71	-1.6%	0/71
	European Currency	21.2%	41/71	14.4%	30/71
Domestic hybrid funds	Convertible bonds	-2.9%	71/71	-7.9%	0/71
	Asset mix	-24.6%	71/71	-35.3%	0/71
Overseas equities	Convertible bonds	2.8%	30/71	1.7%	41/71
	Asset mix	-19.9%	70/71	-23.6%	1/71

Source: Nomura Research Institute.

Note: Rate of appraisal profit or loss is as of March 2003. Number of months refers to the months in which the rate of appraisal profit or loss obtained through one method exceeded those of the other. The comparison assumes that investment started in April 1997 and continued until March 2003.

The above example suggests that the dollar-cost averaging method can be used not only as a measure of mitigating the tendency to sell quickly when investments are in profit, but also as a realistic, effective method of improving the return on investment for many ordinary investors.

7. Conclusion

In this report, we debated the buying and selling of investment trusts principally from a behavioral finance perspective. As a result, we concluded that investors have a strong preoccupation with purchase price, and tend to sell rapidly when unit price exceeds purchase price. We proposed the adoption of the dollar-cost averaging method as one method of reducing such impulsive behavior. We also questioned the prevailing portfolio management practice of maintaining high weightings for domestic and overseas equities. We also concluded that much investor behavior is irrational, and pointed out that, as such, further investor education is necessary.

This report focused on investment trusts and debated the behavior of individual investors. However, from the perspective of individual investors, investment trusts are only one means of managing assets. Going forward, we need to improve our understanding of the decision - making processes of individual investors with regard to asset management, while also taking savings deposits and equity holdings into account. In addition, we hope that related parties will advance the debate over improving product appeal and sales techniques for investment trust products.

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Indian Primary Market: Insatiable Demand

DG Prasuna*

The primary market in India has been agog with activity over the last year. Since the second half of 2003, the primary market as well as the secondary market have shown signs of revival. The primary market in particular has seen a flurry of activity with numerous high-ticket offerings coming into the market. What are the reasons for this frenzy and is it sustainable?

The long awaited Initial Public Offer (IPO) of Tata Consultancy Services (TCS), one of India's prestigious software companies, finally arrived in August 2004. The biggest ever private sector IPO in Indian markets which raised a capital of around Rs. 5,000 cr was subscribed 7.7 times. This should quell the doubts about the capacity of Indian markets to absorb huge issues. According to the Economic Survey, in 2003-2004, a total of 35 companies came out with public issues of which 14 were IPOs. The total amount raised through public offers was Rs. 22, 265 cr of which Rs. 1412 cr were raised through IPOs. This is an improvement compared to 2002-2003 when a total of 14 companies came up with public offers of which only six were IPOs. The total amount raised during that period was Rs. 3, 639 cr, of which IPOs accounted for Rs. 1039 cr.

Revival in the IPO Market

Primary market in India has evolved over the years. Post liberalization and after the abolition of the office of the Controller of Capital Issues, public offers flooded the market. The activity, which picked up momentum during 1993-94 reached a peak during 1994-95 when Rs. 13,311.60 cr were raised through public issues. The number of public offerings coming to the market and the amount raised declined over the subsequent years reaching a low of Rs. 504.01 cr in 1998-99. There was a brief revival thereafter, which lasted for two years after which the market languished again. From mid 2003, the market has witnessed a slew of IPOs, the latest one in the list being TCS.

So, how does this boom in the Indian primary market compare with the earlier episodes? The mobilization of funds has definitely been on a massive scale when compared to the earlier episodes. The quality of the companies tapping the market this time has been particularly comforting from the investor's point of view.

During both the earlier booms, there was an avalanche of poor quality offerings in the market. As issuing companies were allowed the freedom to price their offerings, shares were offered at a huge premium. Investors were left holding worthless stocks as promoters walked off with the cash, taking advantage of the hype of the IPO market. Numerous fly by night operators had tapped the market and 'vanishing companies' had become a norm. Insider trading and fraud became the order of the day. In fact, many experts opine that this loss of credibility of companies led to the lack of interest on the part of retail investors in the equity market. During the technology boom of the nineties, companies tapping the market for an IPO often changed the names to something related to technologies or software. This too left investors bearing huge losses. It is worth remembering that the two stock market scams in India happened during these episodes.

This time around, things have changed for the better. Having learnt its lessons from the earlier episodes, SEBI now has stringent eligibility criteria for companies willing to tap the market. Its Disclosure and Investor Protection (DIP) guidelines, amended as recently as August 2003, created a mechanism of better disclosure and increased transparency. The process of book building has become the norm after the change of rules, thus ensuring better transparency.

The quality of offerings has been much better since most of the companies that have come in for IPOs are large Public Sector Undertakings (PSUs), which have real assets, successful business models and sustainable revenue streams. A number of public sector banks too tapped the market. In addition, the government sold small

stakes under-pricing the issues so as to ensure good demand. In fact, the IPO market as it is today can be seen as a parting gift of the Atal Bihari Vajpayee regime. In their rush to meet the disinvestments target before the elections, the Divestment Ministry lined up as many as six PSUs during Feb-March period. For the full financial year, the Disinvestments Ministry had nine issues through which it raised Rs. 13,200 cr as against a disinvestments target of Rs. 15,547 cr. While that could not help NDA retain power, it did deepen the Indian stock markets. It was the unexpected success of the Maruti IPO that set the ball rolling.

Eager Investors

Many market watchers were worried about the demand and also had liquidity concerns. Particularly during Feb – March 2004, they feared the capacity of the market to absorb the large public issues that were coming in within a few days of each other. According to the Economic Survey, there were as many as 10 big public issues during the 26-day period from 22nd February to 18th March attracting nearly 4.2 million applications in the process. In fact, it was this unusually heavy load that led to ONGC's refund problems. Fears about liquidity, however proved to be unwarranted and unfounded as there was no dearth of investor interest in any of the issues. In fact, most of the issues were over subscribed. One of the reasons for the lack of liquidity problems was the strong demand for Indian IPOs from institutional investors, particularly Foreign Institutional Investors (FIIs).

FII investments in India over a period increased manifold as they found emerging markets, particularly India and China, very attractive. The Economic Survey points out that Indian stock markets are attractive to FIIs as they offer better diversification. For example, the correlation between Nifty and S and P is 0.29 for June 2002 – May 2004. Thus, for institutional investors investing in the US markets, India offers a good diversification opportunity.

In addition, Indian stock markets have also witnessed a reduction in their levels of volatility. Both Nifty and BSE Sensex have recorded a decreased volatility for the two years ending May 2004 as against the period between October 1995 and May 2004. In addition to that, NSE ranked just after the US exchanges in terms of trading intensity (measured by the number of trades) for 2003. NSE ranked third while BSE ranked fifth. Asia Pacific markets have been at the center of IPO activity in 2003-04. Net FII inflows during 2003-04 were Rs. 48, 968 cr (both debt and equity) as against Rs. 2, 822 cr during 2002-03.

On the retail front too, participation from individual investors has increased both directly and through investment in mutual funds. Over the last one-year funds flowing into mutual funds have increased manifold, largely due to the increasing returns in the primary and the secondary market. Another reason that could have spurred the retail investor's interest could be the lack of lucrative alternative investment avenues. Keeping in tune with the global interest rates, interest rates in India were softer, the days of state owned institutions offering assured returns (like UTI) were long gone. In addition, the Government created an incentive to invest in stock markets through tax reforms.

Corporate India has put up an impressive report card luring investors back. Taking advantage of the low interest rate regime, over the last couple of years, corporate India has restructured itself, particularly by substituting high cost debt with low cost debt. Added to this, the monsoons were good during 2003-04, after a gap of two years, which resulted in improved top lines and bottom lines for companies. Many companies genuinely began considering new investments in business and the environment was conducive to tap the stock markets.

Changing with Time

Securities Exchange Board of India (SEBI) has time and again revised the guidelines as per the recommendations of high powered committees, market participants, etc.

One of the major changes that has had a tremendous impact on the IPO market is the introduction of the process of book building. The process was introduced in 1995 as per the recommendations of Malegam panel. Though it was introduced in 1995, the process became popular with issuers only recently. That is largely due to the change in the terms and conditions, which were last amended in August 2003. SEBI has also made some other far-reaching changes, particularly in terms of the DIP guidelines.

An unlisted company can go for an IPO through the normal route or through the book-building process. The eligibility criteria for an unlisted company to make a public offer have also been changed. Presently, an unlisted company planning to tap the market should meet the following conditions: (i) Net tangible assets of at least Rs. 3 cr in each of the preceding three full years (of 12 months each), of which not more than 50% is held in monetary assets (if this percentage is more than 50 the company has made firm commitments to deploy such excess monetary assets in its business/project), (ii) the company should have a track record of distributable profits as defined by the Companies Act, 1956 for at least three (3) out of immediately preceding five (5) years, (iii) it has to have a net worth of at least Rs. 1 cr in each of the preceding

three years, (iv) in case the company has changed its name within the last one year, at least 50% of the revenue for the preceding one year is earned by the company from the activity suggested by the new name; and (v) the aggregate of the proposed issue and all previous issues made in the same financial year in terms of size (i.e., offer through offer document + firm allotment + promoters' contribution through the offer document), does not exceed five (5) times its pre-issue net worth as per the audited balance sheet of the last financial year.)

The changes have certain far-reaching implications. To begin with, the pre issue net worth of not less than Rs. 1 cr has been replaced by net tangible assets of at least Rs. 3 cr. The clause asking for 50% of the revenues generated to be from the business suggested by the new name would avoid a repeat of the IPO scenario seen during the tech boom. Investors would be assured that the company's name change is not a mere ploy to tap the equity market but a very real change in its business profile.

The other major change in the August 2003 amendment was with relation to the book building process. As per the earlier norms, Qualified Institutional Buyers (QIBs), which includes banks, financial institutions, insurance companies, mutual funds, FIIs registered with SEBI, venture capital funds registered with SEBI, etc., were allotted 60% of the issue size. This has been brought down to 50%. Another change is the change in the definition of 'retail investor'. As per the earlier norms retail investor was one who bid for 1000 shares or less. As per the new norms retail investor is one who bids for shares worth less than Rs. 50,000. In the same amendment, SEBI has made it clear that QIBs shall not be allowed to withdraw their bids after the closure of the bidding as against the earlier regulation that said "The investors shall have the right to revise their bids".

These changes seem to have found favor with corporate India as most of the recent issues have been through the process of book building. Book building is the route offered by SEBI for companies that do not satisfy the eligibility criteria. The mandatory allotment of 50% to QIBs ensures that informed, knowledgeable investors are assuming the risk inherent in the companies. The changed norms increase the share of retail investors from 25% to 35% while that of High Net worth Individuals (HNI) remains at 15%.

The real impact of the change in the definition of retail investors would depend on the issue price of specific companies. For instance, if one considers the case of the IPO of TCS, according to the new definition, a retail investor will be the one who will bid for just 64 shares as against the earlier limit of 1000 shares. And going by the general pricing of the recent issues, whether this change has expanded the base of retail investors is doubtful. In fact, many investors who would otherwise have come under the category of retail investors would now be pushed into the HNI category where there is no change in the percentage share of the issue size. Perhaps, the most beneficial change is not to allow withdrawals of bids by QIBs. It has been observed that QIBs would bid at the higher end of the price band thus creating an illusion of higher demand and later on withdrawing their bids. Now, they can only revise their bids and most of the revisions by QIBs in the recent public offers have been upward.

The IPO of TCS comes with a "Green Shoe Option". This was introduced in the August 2003 amendment. SEBI has permitted companies adopting the book-building route to use a 15% green shoe option "for stabilizing the post listing price of its shares". A green shoe options is defined by SEBI as an option for allocating shares in excess of the shares included in the public issue and operating a post-listing price stabilizing mechanism in accordance with the provisions and guidelines laid down by it. Companies as well as the stock markets have welcomed this development.

SEBI has been on a high alert to track any kind of discrepancy in the stock markets– both the primary and the secondary market. For instance, during the confusion in the allocation and refund of subscription money in the ONGC episode, SEBI reacted fast, addressing the issue. Another such instance is the furor about 'participatory notes', where SEBI came out with its clarification putting an end to wild speculation. In the episode of a massive sell off in the secondary market on May 17, 2004 too, SEBI reacted swiftly by getting in touch with financial institutions and stemming the decline. It is also quicker in investigating allegations of insider trading or any other discrepancy. This attitude of an alert regulator has gone a long way in boosting the confidence of retail investors, who are slowly coming back to the equity markets.

Discovering the Right Price?

In the case of the normal IPO, the price is fixed by the issuer and the investor has to decide if he is willing to buy at that price or not. This would mean that the price is at the discretion of the issuer company with investors having no choice whatsoever. Book building process was expected to eliminate this lacuna.

The chief intention of the book building process is gauging the demand and the price discovery mechanism. However, the way book building is practiced in India, both the purposes are defeated. Demand will not be gauged since the number of shares being offered is already given before the bidding begins. The bidding process itself would identify the price within a narrow band rather than discovering the price as such. The concept of a

floor price and a price band is not followed in the US markets. However, in the US, only the Qualified Institutional Buyers (QIBs) participate in bids, unlike in India where retail investors and QIBs are pitched against each other.

As they say, “the proof of the pudding lies in eating it.” If the price discovery mechanism were working efficiently then the huge jumps on the listing days would not have occurred. After all, how much does a company change from the offer period to the listing date? The narrow price band offered itself must have been aimed at under-pricing the issue, so as to enable good returns for investors. Book building is definitely a better process of price discovery than fixed price IPOs, but the discovery is limited to a narrow range.

Future Outlook

There are quite a number of issues lined up for IPOs in the near future. Some of them include NTPC, Crew BOS Products Ltd, Indiabulls Financial Services Ltd, Sah Petroleums Ltd. and Msk Projects (India) Ltd. FIIs are still bullish about India in spite of the change in the political scenario. The UPA Government has dismantled the Disinvestment Ministry and has announced that it will disinvest only loss making PSUs. This could reduce the frequency of PSU offerings coming to the market. However, that may be replaced by increased activity in the private sector. As interest rates are likely to harden in future, raising equity capital would prove to be attractive to companies.

The IPO market in India has come a long way since its beginnings in the early 1990s. Learning from experience, the regulator has matured and has created a system that is on par with the best in the world. Improving business opportunities and global forays could keep up the demand for funds from corporate India. Investors so far have shown good appetite for quality issues. The challenge for the regulator would be to keep fraudulent issues away from the market. Avoiding such issues is in the interest of the corporate world itself as it ensures that retail investors would not lose trust and stay away from capital markets. For their part, investors too should do their homework before investing in IPOs rather than grabbing every IPO with the same fervor without any concern for the fundamentals or the quality of management, etc. of the company. It is the investor’s hard earned money and he should invest it carefully. ♦

Exhibit I
Changes in Primary Market Volumes
Public Issues: Equity and Hybrid

Year	No. of issues	Issue Amount (Rs. cr)
1989-1990	186	2,521.96
1990-1991	140	1,450.19
1991-1992	195	1,399.84
1992-1993	526	5,651.38
1993-1994	765	10,824.04
1994-1995	1343	13,311.60
1995-1996	1,423	8,881.71
1996-1997	740	4,671.13
1997-1998	58	1,131.84
1998-1999	22	504.01
1999-2000	56	2,974.71
2000-2001	115	2,478.56
2001-2002	6	1,082.05
2002-2003	6	1,038.68
2003-2004*	27	17,665.00

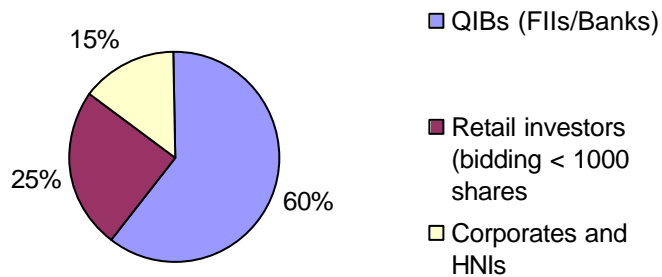
* Approx. amount as pricing of PTO Petronet and Bicon was yet to be decided at the time of preparation of this Table.

Source: Prime Database

Exhibit II
Changes in Book Building Norms

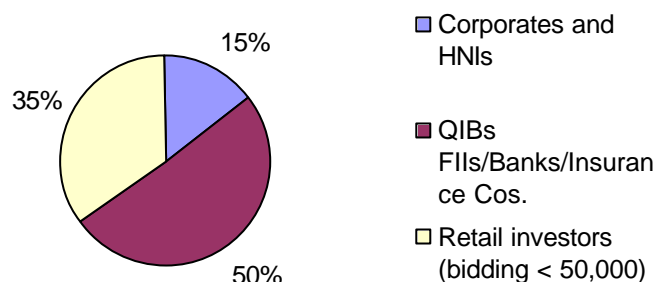
Earlier norms...

Distribution of Equity Allocation (Old)



New norms...

Distribution of Equity Allocation (New)



Source: *Equitymaster.com*

Exhibit III Rewarding Investors

The public offers, which have come into the market during the last one-year, include some really good companies. Particularly, from the public sector companies such as Maruti, IPCL, CMC, IBP, Dredging Corporation, Gas Authority of India, ONGC, ICI have made their presence felt on the bourses. From the private sector too influential names such as Biocon, TV Today network, NDTV, Patni Computers etc., have come into the market. The following table gives the annualized returns of some of the important IPOs.

Company Name	Issue Date	Issue Price (Rs.)	Adjusted Closing Price on the Listing Day (Rs.)	Annualized Returns (%)*
1 Bank of Maharashtra	04/03/04	23	38.95	96.24
2 Biocon Ltd.	11/03/04	315	484.35	69.20
3 Datamatics Technologies Ltd.	19/04/04	110	164.85	63.00
4 Four Soft Ltd.	23/02/04	25	24.45	-2.18
5 Indraprastha Gas Ltd.	28/11/03	48	119.20	304.94
6 Maruti Udyog Ltd.	19/06/03	125	164.05	36.12
7 New Delhi Television Ltd.	28/04/04	70	99.40	51.11
8 Patni Computer Systems Ltd.	05/02/04	230	214.00	-6.74
9 Petronet L N G Ltd.	09/03/04	15	15.24	1.61
10 Power Trading Corpn. of India Ltd.	08/03/04	16	44.65	430.68
11 T V Today Network Ltd.	27/12/03	95	138.95	57.45
12 Uco Bank	10/09/03	12	19.50	83.91

* Assuming the listed date is one month from the issue date.

Compiled using the data from CMIE Prowess