MAS
1971 – 2011
SUSTAINING STABILITY
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Monetary Authority of Singapore

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Foreword

This is the first time the Monetary Authority of Singapore (MAS) has commissioned a comprehensive account of its history. The authors have drawn not only on materials published by MAS and others, but interviews with those who were closely involved in its evolution as well as various stakeholders in the financial sector. This book thus brings the institution to life, with a wealth of insights and insider perspectives on both the "how" and "why" of MAS policies over four decades.

From its unpretentious beginnings with three disparate functions, MAS has developed into an organisation performing the full roles of central banking, integrated financial services regulation, and developing Singapore as an international financial centre. MAS' vision, professionalism and boldness of action have been critical to Singapore's macroeconomic stability and the soundness and integrity of its financial system.

This book delves into the intangibles that give MAS its strength – its clarity of mission, the quality of its people, a strong ethos of excellence in every area, and a willingness to innovate and take calculated risks. These qualities have helped it to secure confidence in the Singapore dollar and ensure financial stability amidst regional and international crises. They have also enabled MAS to support Singapore's development as a well-regulated and dynamic financial centre.

This history of MAS is also of interest from an international perspective. MAS' combined functions as a central bank and regulator of the broad span of financial markets remain unique amongst its peers. Its creditable track record, however, reflects the judicious management of these joint responsibilities and the synergies achieved across them, especially by developing and circulating talent across distinct professional functions.

This book is ultimately a tribute to the past and present staff of MAS who, through their dedication and mastery, built the organisation into what it is today – a highly credible and effective institution. I hope the pages that follow will inspire current and future generations of MAS staff to build on these past efforts and help take Singapore to new heights.

THARMAN SHANMUGARATNAM
Chairman
Monetary Authority of Singapore
October 2011

MAS
Monetary Authority
of Singapore

A BRIEF HISTORY OF MAS

The transformation of Singapore's economy and its financial landscape over the last 40 years has attracted much praise. But the journey to success was neither easy nor smooth. Globally, the period was marked by one major financial blow after another, including the exchange rate crises and the oil shocks of the 1970s and early 1980s, the Asian financial crisis in 1997 and the global sub-prime mortgage meltdown of 2008–2009. At home, the Singapore economy had to demonstrate the kind of stability and potential that would convince foreign multinational companies to locate their operations here and eventually form the backbone of the country's extraordinary economic growth. Singapore also sought to develop a thriving global financial centre in its own right, populated by international banks serving the funding needs of the region and engaging in sophisticated cross-border activities such as foreign exchange and derivatives trading, the volume of which would be many times the size of Singapore's domestic economy.

The Singapore economy grew by 7.4 per cent per annum during the last 40 years, one of the highest rates of gross domestic product (GDP) growth in the world. This was achieved against a backdrop of remarkable price stability. Consumer price inflation averaged only 3 per cent per annum over this period – one of the lowest in the world. How did Singapore achieve this?

Top: MAS first Board of Directors 1971. Above: First meeting of the Committee of ASEAN Central Banks and Monetary Authorities, 1972.

Singapore has made the leap from a Third World economy to First World status, on the back of robust growth in both its manufacturing and services sectors. One of the most important industries now is the financial services industry: the businesses of hundreds of international financial institutions, both large and small, accounted for close to 12 per cent of Singapore's GDP last year, more than double the 5.4 per cent share in 1970. How did the Monetary Authority of Singapore – working both independently and together with the rest of the government – pull it off? What allowed Singapore to weather one financial crisis after another and emerge relatively unscathed each time? And why has the collapse of global financial institutions around the world not led to major financial panic here?

This book will shed light on questions like these by drawing from the rich history of MAS, which celebrates its 40th anniversary this year. It is a story told through both the organisation's various publications, as well as a series of interviews conducted from 2009 to 2011 with past and present MAS leaders. Together, they give the reader not just a summary of the key policies MAS has implemented over the years, but also an insider's look at the thinking behind them and the challenges of implementing them, including the sometimes dramatic developments that accompanied their execution.

The book begins with a macroeconomic focus, explaining how MAS conducts monetary policy and why the Singapore dollar is central to its effort. It then moves on to the workings of Singapore's financial sector, with special chapters on reserve management, financial supervision, safeguarding consumers, and financial sector development. A discussion follows about how MAS managed four noteworthy crises in its history. The book then closes by discussing the increasing importance of engaging the international community and talent development.

But first, this introductory chapter charts the development of MAS as an organisation through the last four decades and highlights several common themes that have been central to the way it has formulated and executed its policies.

MAS – A 40-year history

The history of MAS can be split into three phases demarcated by two major restructurings. The first restructuring was in 1981 under then chairman and deputy

Dr Goh Keng Swee (standing), Singapore's finance minister, together with 16 other senior government officials – eight from the Federation and nine from Singapore – met on 11 June 1960 for the first of a series of talks to set up a "limited common market".

prime minister Dr Goh Keng Swee, and the second in 1998 under then chairman and deputy prime minister Lee Hsien Loong.

The first phase of MAS history lasted from January 1971, when it began operations, to February 1981, when Dr Goh's re-organisation occurred. These were the formative years of the organisation. MAS started as three departments, located in two separate places. Senior management – including managing director Michael Wong and chief manager Elizabeth Sam – had offices at City Hall while the other departments worked out of the Currency Board building. A year after it started, MAS added three new departments: the Economic Intelligence Department; the Secretariat and the London Office, which joined the original trio of the Banking and Financial Institutions, Investment and Exchange Control; and Banking Operations and Administration departments.

Following the abolishment of exchange controls in 1978, MAS did away with its Exchange Control Department and reorganised its internal structure. That year also saw MAS moving all its departments to the SIA Building at 77 Robinson Road, operating under a single roof for the first time. This helped to give the organisation a sense of unity. The new building also had a dining room, which was significant in kicking off the close relationship that MAS had with private sector bankers and businessmen in its first decade of operation. The room "enabled us to invite bankers and businessmen to attend lunch once a week", says Mr Wong. "It was to enable us to make contact with the real world. They were the people from the industry, commerce and banking. We got them in, just to listen to them, just to talk."

By the end of the 1970s, the pioneering team at MAS had made large strides in transforming the organisation from a scattered collection of offices and functions to a coalesced whole. This provided the necessary building blocks for MAS to evolve into a strong and effective institution.

The first phase of MAS' existence came to an end with the appointment of Dr Goh Keng Swee as MAS chairman in 1980. Dr Goh set in motion a sweeping reorganisation of MAS to sharpen its effectiveness as Singapore's de facto central bank. Among the key changes he made were creating a new monetary policy framework centred around the exchange rate, strengthening MAS' role to supervise the financial system and setting up the Government of Singapore Investment Corporation (GIC) to invest Singapore's excess reserves in long-term instruments. Dr Richard Hu, whom Dr Goh brought in to be MAS managing director and who later

Dr Goh Keng Swee (second from left) chairing an MAS board meeting.

Top, above and opposite: Official opening of the MAS Building, 9 November 1985.

became chairman, says Dr Goh's aim in restructuring MAS was "to set up clear job responsibilities within MAS. There would be a unit in charge of banking regulation and development, a unit in charge of currency and monitoring exchange rates, and there would also be a unit in charge of economics." Dr Goh also wanted to put in place a culture of greater detachment. "He felt there was too close a relationship with the banking sector," says Dr Hu. Last but not least, MAS' assets had been invested in short-term investments that could be liquidated at a moment's notice. Dr Goh felt that some of this could be invested in better-yielding assets over the long term.

Following the restructuring, some members of top management, including Mrs Sam and Mr Wong, left the organisation. Then followed a period of care-taker managing directors: Mr Lim Kim San, who replaced Mr Wong in the role for just over a year, from March 1981 to September 1982; Mr Yong Pung How, brought in from OCBC Bank for nine months, from October 1982 to June 1983; and Dr Richard Hu, who took over the position in July 1983. Dr Hu relinquished the position when he entered politics in 1984 and Dr Goh assumed the post of managing director in the interim, for four months. Mr J Y Pillay finally brought some continuity to the post when he came in 1985 and stayed on as managing director for four and a half years. The year 1985 was significant for MAS in other ways too: on 11 March, staff moved to the new MAS Building in Shenton Way, giving them a more conducive and productive working environment with an open-plan concept and the latest office automation equipment.

Top and above: MAS 30th Anniversary Conference, 2001.

One of Mr Pillay's first endeavours as managing director of MAS was to introduce a mission statement for MAS, drawing on his experience on the boards of several companies, including DBS Bank, where he had been the chairman from 1979 to 1984. While at DBS, Mr Pillay had helped develop the bank's human resource policies, and understood the importance of setting a common aim to unite all the employees in an organisation. After an organisational effort that started with each department articulating its own mission statement, the first MAS mission statement – which was partially based on the organisation's functions as laid out in the MAS Act – was formulated thus: "The MAS seeks to promote sustained and non-inflationary growth of the economy as well as to foster a sound and progressive financial services sector." Twenty-five years on, the mission statement remains almost identical word-for-word: "To promote sustained non-inflationary economic growth, and a sound and progressive financial centre." In 2007, amendments to the MAS Act ascribed to MAS, alongside its objectives of price stability and a sound financial centre, the added functions of ensuring the prudent and effective management of the official foreign reserves of Singapore, and growing Singapore as an internationally competitive financial centre.[1]

Mr Pillay also introduced a variety of human resource tools and policies for MAS staff, one of which was the rotation of its officers to various departments as part of career planning. To ensure the competitiveness of MAS' compensation policies, Mr Pillay commissioned a survey of remuneration in the financial sector in 1989, and MAS also participated in other similar surveys conducted by external organisations. Appropriate adjustments were made to the salaries and benefits of MAS staff to reflect the findings of the studies.

To strengthen top management, Mr Pillay created in 1988, three deputy managing director positions. He appointed Mr Koh Beng Seng to oversee the banking functions, Dr Teh Kok Peng for the economics department, and Mr Law Song Keng for insurance.

When Mr Pillay moved on from MAS to become the Ministry of National Development's permanent secretary in November 1989, his successor, Mr Lee Ek Tieng, inherited a sound organisation. Mr Lee's tenure at MAS coincided with nearly a decade of strong and steady economic growth in Singapore, which came to an abrupt end in the late 1990s with the onset of the Asian financial crisis.

Two key events marked the decade of the 1990s for MAS: the Asian financial crisis and the second major restructuring of the organisation. Thus began the third phase of MAS history. It would be another deputy prime minister who would initiate and drive the re-organisation. This time, it was Mr Lee Hsien Loong, who took the reins as MAS chairman in January 1998. At a time when the rest of Asia was reeling from the regional crisis, MAS decided to undertake a fundamental review of its roles and functions and embark on a shift in its regulatory approach to one that emphasised supervision. In addition, MAS began to build up new capabilities in strategic and corporate planning and strengthen the functions of financial sector promotion and supervisory policy development. The overall aim of this shift was to regulate the financial sector with a more nuanced and differentiated touch, accept more calculated risks, and give the industry more room to innovate and stretch the envelope, announced Mr Lee in a groundbreaking speech in 1997. This new direction would, in turn, allow Singapore to keep up with the fast-changing global financial sector, which was becoming more inter-connected, competitive, and technology-driven.

Briefly, the major changes to the organisation were as follows: the Banking and Financial Institutions Group was reorganised as the Financial Supervision Group, comprising five departments – Banking, Securities and Futures, Insurance, Supervisory Policy, and Market Infrastructure and Risk Advisory. The International Department was renamed the Markets and Investment Department in 1998 to better reflect the range of its functions; a year later, it was again reconfigured into a Reserve Management Department and a Monetary Management Division, to work closely with the Economics Department for more seamless monetary policy formulation and implementation. A separate Financial Sector Promotion Department was set up to focus MAS' efforts in promoting Singapore's financial industry and its role as a financial centre. Meanwhile, MAS' increased participation in international fora led to the creation of a new International Relations Department, which took on and expanded the role of the former External Relations Division within the Economics Department. In addition, an integrated Risk and Technology Office was also formed to oversee risk management in the financial sector from the financial, technological and IT infrastructure perspectives.

A Planning and Policy Co-ordination Unit was established to oversee the co-ordination and integration of policies across departments in MAS and take charge of "big picture" functions such as strategy, scenario planning and organisational development. A year later, it was renamed the Planning, Policy and Communications Division to reflect the growing importance of corporate communications, in line with MAS' move towards becoming more transparent. The division, renamed the Strategic Planning Office today, reported directly to the managing director. A new Corporate Support Group was also created, comprising the Finance Department, the Information Technology Department, a Corporate Services Department and a separate Human Resource Department to give greater focus to people development as a critical function and area of priority within MAS.

Recruitment was stepped up to support MAS' manpower needs for its expanded roles and functions. In particular, the shift in regulatory approach to give greater emphasis to supervision and on-site examination called for a substantial increase in staff strength. MAS stepped up its efforts to hire seasoned mid-career crossovers from the private sector with the necessary industry knowledge, especially for the new Financial Sector Promotion, Banking, Securities and Futures, Economics and Information Technology departments.

There was also a second aim to the restructuring exercise. Until the late 1990s, MAS was "marked by distinct silos" – departments that while individually well-run, engaged in minimal interaction and communication, recalls Mr Tharman Shanmugaratnam, a former managing director of MAS who is now chairman of the organisation as well as deputy prime minister of Singapore. Mr Lee Ek Tieng, who was managing director of MAS in the 1990s, adds: "They were powerful, well-respected and competent people – except that they were protective of their turf. That was the culture." One of Mr Lee Hsien Loong's top priorities was therefore to break down the barriers and create a more cohesive culture within the organisation. "MAS was working well but not in a very networked and collegiate sort of way," explains Mr Lee, who is now Singapore's prime minister. "Different entities guarded their prerogatives. For example, there was very little discussion between monetary policy and supervision, and each felt there was really no need to talk about it." Policies were decided by circulating papers rather than discussing issues face-to-face, he says. "But

unless you have that exchange and engagement, you don't really put ideas to the test or scrutinise them," he adds. "Nor do you develop a shared understanding of where we are going and what we are trying to do, and over time influence one another's ideas and views."

To change this system, Mr Lee instituted two regular meetings – the Monday morning Monetary and Investment Policy Meeting (MIPM), a carryover from Dr Goh Keng Swee's days and still in effect today, as well as the Chairman's Meeting (affectionately known as "CM") to discuss other policy matters. Top management attended both meetings, during which relevant staff members would present policy papers and debate on issues. The debates went on "sometimes at excruciating length", recalls Mr Lee. "But it was necessary to get people to defend their views and be prepared to talk across borders into somebody else's bailiwick and not feel that you are treading on his toes."

Mr Koh Yong Guan, then the managing director, was "committed to getting cross-communication and opening up policy discussions within the organisation", recalls Mr Tharman. "We would find every opportunity to develop policies collectively. Never being defensive, always being willing to listen to views from our peers, even if they were not specialists in the areas that we were in charge of."

The Planning, Policy and Communications Division, which reported directly to Mr Koh, became the nerve centre for many of the reforms that were going on. It was headed initially by Mr Ravi Menon, who himself became the managing director in 2011. "We were really co-ordinators and facilitators – not necessarily the subject experts. Our job was to make sure that issues were joined and that both the pros and cons of a proposition were well reflected," recalls Mr Menon.

It also helped that e-mail was introduced in the organisation in 1997, facilitating the exchange and flow of ideas and communication among the different departments. The recent popularisation of Wikipedia in the Internet age also gave MAS the idea to start MASPedia, an online encyclopedia for staff to learn about specialised topics relevant to the organisation. Modelled on a Wiki platform, MASPedia provided a way for all staff to contribute information and collaboratively build an MAS knowledge base. MAS' online platforms were also updated to allow greater sharing of ideas and articles through blogs, fora and opinion polls, generating a freer exchange of ideas

Top: Recipients of the MAS undergraduate scholarship with Mr Ravi Menon (extreme left) and Mr Tharman Shanmugaratnam (third from right). Above: Guests and recipients at the MAS Undergraduate Scholarship Ceremony in 2011.

Mr Tharman Shanmugaratnam (left), Mr Koh Yong Guan (centre) and Ms Yeo Lian Sim (right) at the MAS Annual Report press conference in 1998.

and views among the staff. The result of all these initiatives was a sea change in the internal culture of MAS.

Today, MAS is organised into nine groups of departments. The Economic Policy and Markets and Investment groups take care of Singapore's monetary policy and foreign reserves. Another three groups – Banking and Insurance, Capital Markets, and Policy, Risk and Surveillance – supervise and regulate all financial institutions that operate in Singapore, large and small. The Development Group looks at the strategies and infrastructure needed for the growth of the financial sector. The Currency, Corporate Services & Human Resource group, as well as the Finance, Information Technology & Risk Management group provide support to the running of the organisation.

Not only do the groups and departments interact frequently to consider policy responses, several MAS officers who have been rotated into various jobs across the organisation have now attained senior management positions. This has helped bring

about a more cohesive and integrated culture within MAS. "What we have now is quite unrecognisable when compared with what we had before the late 1990s," adds Mr Tharman, who had experienced both phases in the organisation's history. "If you look at the way the economists, for instance, are involved in financial stability matters; or the way the people on the reserve management side collaborate on financial promotion matters and just shaping thinking generally. It has led to vastly improved quality right through the organisation. I have no doubt about it."

Another key mindset change that occurred within the organisation after Mr Lee took over the reins was the heightened emphasis on risk management as a strategic priority. The Asian financial crisis in 1997, which erupted over issues like excessive exposure of certain regional countries to borrowings in US dollars, revealed the relative weakness of risk management systems within both financial institutions and financial regulators in the region. "Our own risk management systems needed bolstering," recalls Mr Tharman. "The banks themselves had to develop better systems to track and manage country and credit exposures and enhance their risk management systems. They had to develop systems that didn't just rely on one or two persons at the top making the right calls."

Since then, helped by the implementation of the international Basel II capital framework for banks, MAS has worked to ensure that Singapore financial institutions build up their risk management capabilities and internalise risk management into their businesses. It has also partnered universities and business schools here to train financial professionals who understand market, credit and liquidity risks in an integrated manner. Indeed, some financial institutions are now using Singapore as a base for overseeing the risk management of their regional operations.

In this regard, MAS has had to focus on building its own risk management capabilities so as to know what questions to ask the institutions it was regulating and what guidance to give. From an initial focus on financial risks, the central bank has moved steadily towards a more formalised and integrated approach that covers all risks, allowing for better decision-making.

In 2000, a Board Risk Committee was set up to assist the Board of Directors. An independent Board member, Mr Lam Chuan Leong, who was then permanent secretary to the Ministry of the Environment, chaired the committee. The Risk

Committee was tasked with examining all strategic risk management issues as well as ensuring that the right risk methodologies and risk measurement systems were established.

MAS has also moved on various fronts to inculcate a strong risk culture within the organisation. It held its inaugural Management Risk Day in October 2005, where it assessed the current environment and identified 10 key risks that threatened MAS' achievement of its vision, mission, objectives and business outcomes. "Risk champions" have been appointed in each department and regular reviews to identify key risks and risk mitigating measures are conducted. In addition, MAS has communicated to all staff a zero tolerance policy towards fraud.

More recently, all of MAS' risk management functions, including the management of investment risk, enterprise risk and business continuity, were consolidated with the establishment of a standalone Risk Management Department. On the supervision side, a reconstituted Specialist Risk Department monitors and assesses the risk management processes and controls of all licensed financial institutions and designated payment systems. Risk management has become more important in an increasingly volatile financial landscape, and MAS continues to develop risk management capabilities, both internally and across Singapore's financial sector, to enhance Singapore's reputation as one of the most stable and rigorously regulated financial centres in the world.

Unchanging themes

While the organisation may have gone through different phases in its development, several consistent themes have remained central to MAS' philosophy throughout. The first of these is the *consistency and credibility of action* that is now globally recognised as a trademark of MAS. This credibility, built up over the past 40 years, has been the result of formulating policies that are clear and consistent with its mission, and implementing them efficiently and objectively. Whether it was repeatedly rejecting the entry into Singapore of questionable banks despite their impressive connections, such as the Bank of Credit and Commerce International (BCCI), or taking internationally famous names to task, MAS' approach to supervising the financial sector has been centred on a selective admission policy, high prudential standards, and rigorous enforcement. On the monetary policy side, it has acted pre-emptively but always with a medium-term orientation to ensure stable and low inflation for sustained economic growth.

The credibility MAS had acquired was used to its advantage, enabling it to continue liberalising the financial sector even as the region was reeling from macroeconomic instability and a massive flight of foreign investors during the Asian financial crisis. "Would we have liberalised and embarked on that whole new phase of financial competition if we had not gone through the earlier phase of building up controls and restrictions?" asks Mr Tharman. "Without the credibility that came from being viewed as tightly regulated, everything we did subsequently would have been questioned in the market. And people would not know whether the system would retain its resilience."

A second important theme in MAS' history is its record of being *pre-emptive rather than reactive*. MAS has been commonly perceived as one of the most careful regulators in the world, instituting prudential limits and policies stricter than the international norm. It is also seen as one of the toughest supervisors, coming down hard on any failure to comply with regulations. But MAS has also recognised that it cannot guarantee a crisis-free or failure-free regime. In monographs published in 2004 and 2010, it declared that it does not aim to run a supervisory regime that guarantees there will never be any kind of shortcoming in behaviour or failure of any firm.[2] It stated, however, that it expects Singapore's "regulatory regime to be sound and underpin the stability of the financial system as a whole, as well as support sustainable development of the financial services sector through efficient and responsive regulation that is not unduly burdensome".

A third theme is that of *pragmatism*. This is reflected through an attitude of not blindly following fashionable economic theories of the day or regulatory developments in the key financial centres of the world. In many areas, MAS has charted its own course with an eye on what works best for Singapore's open and trade-dependent economy. While it has from time to time adopted the practices of other jurisdictions, it has not done so without monitoring such policies and carefully assessing their potential impact on financial institutions operating here. In the early 1980s, for example, MAS went against the prevailing economic fashion when it decided to target the exchange rate for its monetary policy. In much of the Western

world, including the US and UK, the main instruments of monetary policy were the money supply and interest rates. But Dr Goh and other MAS leaders were always independent thinkers who did not necessarily accept the orthodox, doctrinaire view.

More than 20 years later, that same deliberateness and proclivity to carefully examine innovations helped to spare Singapore much of the fallout from the global sub-prime mortgage crisis of late 2008. Although MAS developed the criteria for banks to take off their balance sheets, securitised mortgages – which were repackaged into collateralised debt obligations (CDOs) and other exotic derivatives that triggered the ensuing global financial crisis – it did not rush to promote the activity. It also did not remove loan-to-value ratios for banks' exposure to property. As a result of this and other stringent balance sheet requirements, Singapore banks did not take to CDOs in a big way. "Our market was too small; we didn't have the aptitude, the knowledge, the know-how," recalls Mr Lee. "And we asked ourselves, if the banks are going to take the risks off their balance sheets, whose balance sheets are they going to? Because in Singapore, a big part of loans are property-related one way or the other. Therefore we didn't push this way and our banks didn't go this way on a big scale. And when the crash happened, while we had some exposure, it wasn't disastrous."

A fourth theme, which is related to pragmatism, has to do with the *unique relationship between MAS and the government*. In many Western countries, the central bank is given legal and formal independence from the government to prevent monetary policy being politicised. Yet the practice in Singapore is for the chairman of MAS to be a minister and for the MAS Board of Directors to also include government ministers. "This is not a theoretical matter," says Mr Tharman, who is currently both the chairman of MAS as well as finance minister. "The reality is that in most countries it has been very hard for a civil servant or any other non-elected person to run the central bank with the full degree of independence that the theory suggests. Not in a system where the government is elected into office and has a mandate to run the country."

However, the presence of a relatively senior minister double-hatting as MAS chairman helps in a different way. In the key areas of monetary policy and financial supervision, MAS scrupulously preserves its independence from any particular ministry, including the Ministry of Finance and the Ministry of Trade and Industry.

MAS Building today.

"Precisely by having as its chairman a member of cabinet, MAS has been able to maintain its independence from the various ministries," explains Mr Tharman. "Even in the many years when the minister for finance was also the chairman of MAS, as is the arrangement now, there is this independence because MAS staff report to him as MAS chairman and not as the minister for finance, so papers did not need to go through the Ministry of Finance before they were approved. They went up and down within MAS itself."

Mr Tharman acknowledges that it is a system that could weaken if the wrong type of cabinet was in place. "But it has worked well to date," he adds. "The managing director of MAS who is the de facto [central bank] governor, has a lot more autonomy in Singapore than in many other countries, precisely because he has his own minister to report to and doesn't need to worry about others."

Finally, part of MAS' success in implementing regulatory reform lies in a simple principle: that dialogue and consultation with the industry are an invaluable element of the process. MAS believes that industry consultation is necessary not only for developing good policies, but also to ensure smooth implementation. It could not have carried out such dramatic changes to Singapore's financial sector without actively involving the industry. The Financial Sector Review Group, formed in 1997 to undertake a review of the financial sector and formulate strategies for liberalisation and development, depended heavily on private sector inputs. So too did the Economic Review Committee's Financial Services Working Group in 2002 and the Economic Strategies Committee in 2009, both of which tapped on the expertise and experience of industry practitioners to identify new engines of growth for Singapore.

In the past decade, MAS has moved to formalise the process of industry consultation, publicly releasing every set of policy changes in draft form in advance for financial institutions, investors and consumers to give their feedback. MAS then publicly responds to comments and questions raised in a separate document before going on to implement the proposals. The industry sees this approach as an effective way to develop Singapore as a financial centre. "The strong partnership between the MAS and businesses in Singapore has created a vibrant financial industry with a sound and rigorous regulatory framework and extremely high standards," says Mr Michael Zink, country officer of Citi Singapore.[3] "Its consultative and open approach to working with financial institutions, especially in important areas of regulatory reform in the last few years, has not only enhanced the competitiveness of the country as one of the fastest growing financial centres in the world, but also helped individual financial institutions to succeed in Singapore." Mr Ray Ferguson, regional CEO, Singapore & Southeast Asia, Standard Chartered Bank, adds: "In the course of my banking career, I have had the opportunity to understand and appreciate financial regulation in a number of international markets. This approach of public consultation adopted for well over a decade is the hallmark of a world-class financial regulator."[4]

In the past 40 years, MAS has worked hard to secure the bases of Singapore's economic success: macroeconomic stability and the soundness and integrity of the financial system. In doing so, it has managed to strike a fine balance between regulation and supervision of a high standard, and risk-taking and innovation. Putting all these ingredients in the mix has required considerable skill and foresight given the ups and downs of financial markets over the decades. OCBC Bank's chairman Cheong Choong Kong concludes: "The global standing of Singapore as a sound financial centre was certainly not achieved by chance. The MAS has made commendable efforts to be ahead of the curve in terms of balanced and pragmatic policy making. Yet at the same time, it is not one to shy away from tough measures to get the job done. Such careful strategising and planning has helped our financial system to remain resilient through times of crisis, and established stability and market confidence in our financial system."[5]

ENDNOTES

1 Monetary Authority of Singapore Act (Chapter 186).

2 "Objectives and Principles of Financial Supervision" and "Tenets of Effective Regulation". MAS monographs. 2004 and 2010 respectively.

3 Michael Zink. Interview by authors, 2 September 2011.

4 Ray Ferguson. Interview by authors, 2 September 2011.

5 Dr Cheong Choong Kong. Interview by authors, 12 August 2010.

Two

MONETARY POLICY

"In Singapore, which of the monetary aggregates does the MAS watch – M1, M2, or M3? The answer is none … the MAS is probably the only central bank that does not have to watch the Ms. What then does it watch? It watches the foreign exchange rates."

Dr Goh Keng Swee in his parliamentary speech on the Monetary Authority of Singapore (Amendment) Bill on 24 August 1984.

Singapore's exceptionally small and open economy has made it necessary for the country to adopt an unconventional monetary policy framework, and its government's credibility and sound policies have made it possible to do so. Unlike most central banks around the world, MAS conducts monetary policy using the exchange rate. This has proven to be its most effective instrument against inflation, given the significant role played by the exchange rate in a small trade-dependent country.

Working in tandem with other robust macroeconomic policies, the exchange rate-centred monetary policy framework has played a crucial part in attaining MAS' objectives of low and stable inflation. This has protected the purchasing power of the Singapore dollar and preserved the value of Singapore residents' savings over time. It has also kept prices predictable for businesses, thus helping to attract long-term investments into Singapore. All this has laid the foundation for sustainable economic growth over the last few decades.

This chapter will detail the reasons for MAS' choice of the exchange rate as its monetary policy tool and explain why it works in Singapore's unique context. It

will also describe how monetary policy has evolved over the years and the principles behind how it is currently formulated, implemented and communicated. In conclusion, the chapter will briefly outline the contemporary challenges and issues facing monetary policy in Singapore.

Evolution of monetary policy

When MAS was first established in 1971, the key focus of the organisation was to supervise Singapore's financial system and manage its reserves. In subsequent years, the establishment of Singapore as a regional and international financial centre was made a second priority. Monetary policy, which had not taken on a coherent shape before MAS was set up, ranked a hazy third objective at the time – a fact that explains the absence of a formal monetary policy framework in the 1970s. As Mr Michael Wong, MAS' first managing director, puts it: "When we first started, we could not do anything about interest rates. We didn't have any of the mechanisms required to manage the money supply, to intervene in the market."

In the absence of specific targets for monetary aggregates or interest rates, MAS initially used a "checklist" of indicators – including interest rates, exchange rates, the monetary base and loan growth – to gauge if the economy was overheating and to assess suitable adjustments. Early MAS policymakers made policy in a flexible and pragmatic manner, using what former MAS deputy chairman and managing director J Y Pillay calls an "eclectic" mix of measures to fulfil the myriad objectives of monetary management and to address the diverse nature of external shocks at that time. When MAS needed to rein in credit, it raised the reserves that banks were required to set aside, imposed special deposit ratios, and used moral suasion. On exceptional occasions, it also hiked the interest rates.

This last type of adjustment, however, was rare. Interest rates in the early 1970s were determined through a cartel arrangement among the banks in Singapore, with all banks quoting the same prime lending and deposit rates. Changes in these rates were usually initiated by the Association of Banks in consultation with MAS.[1] MAS generally allowed the banks to move the rates at their discretion. This system of cartel interest rates lasted until July 1975, after which banks were allowed to quote their deposit and lending rates freely. Throughout the period, MAS mostly adopted a hands-off approach to interest rates, save for one occasion during the oil shock in 1974, when skyrocketing oil prices paved the way for asset price inflation and stagflation loomed as a clear threat. To cool the market, MAS issued a directive to raise interest rates by a significant 2 percentage points – four times more than the usual half-percentage-point adjustment at that time.

Exchange rate considerations were only implicit until the Bretton Woods system of fixed exchange rates broke down in the early 1970s, prompting MAS to develop the necessary infrastructure to manage the exchange rate. MAS began to monitor the value of the Singapore dollar against a basket of currencies representing Singapore's major trading partners. An exchange rate policy band was introduced in 1975, and the movements of the Singapore dollar within that band were closely tracked.

In the meantime, MAS was studying ways to better monitor and influence liquidity and monetary conditions in Singapore. It developed market instruments and institutions that would allow it to carry out monetary policy, including discount houses – based on the British model – as well as treasury bills and certificates of deposit. Towards the end of the decade, MAS also began to move away from direct controls such as changes in reserve requirements and credit guidelines, and rely more on operations in the foreign exchange and domestic money markets. This was supported by the dismantling of the interest rate cartel and the liberalisation of exchange controls in 1978.[2]

Throughout the 1970s, the main objective of monetary policy in Singapore had been "the promotion of steady domestic economic growth with relative price stability" – a mission that was in line with that of most other countries. But as the 1980s began, two developments coincided to lay the ground for a fundamental change in the way Singapore was to view monetary policy.

The first was international: following the second oil shock in the late 1970s/early 1980s, industrial countries deep in recession were undergoing a spate of economic soul-searching. Unemployment was rising, world trade was stagnating, and interest rates and exchange rates around the world were experiencing extreme volatility. Amid this inhospitable global environment, central banks were coming to

the realisation that low inflation should be their primary goal to achieve sustainable growth, rather than full employment, balance of payment surpluses or any other objective they had previously pursued.[3]

Singapore was no exception. Domestic inflation was running high in the early 1980s, partly due to the oil shock and partly due to a sharp increase in labour costs that was the result of a government policy between 1979 and 1981 to raise wages in a bid to boost productivity. And as inflation stayed stubbornly above historical levels, there was a growing sense that Singapore's unusual openness and dependence on imports made a monetary policy aimed at domestic targets – such as the interest rate and money supply – less effective at combating inflation than in other countries.

In this situation, ripe for change, occurred the second key development: the appointment of Dr Goh Keng Swee, Singapore's first deputy prime minister and its foremost economic architect, as MAS chairman in 1980. Dr Goh was keenly aware of Singapore's unique economic circumstances – "which were different from the circumstances in, possibly, every other ASEAN country" – and he was "always of an independent bent of mind", according to Mr Pillay. While the US and UK at the time exhorted the virtues of using money supply to control inflation, Dr Goh assessed the use of each instrument for Singapore's purposes and, as Mr Pillay recalls, had an "instinctive sense" that the exchange rate was the right choice of tool for monetary policy.

In a seminal speech in 1984, Dr Goh elaborated on Singapore's exchange rate-centred monetary policy framework which had been implemented since 1981. He told parliament that MAS, unlike other central banks, did not have to closely watch monetary aggregates because Singapore's public sector accounts were in a "state of chronic surplus". Countries that run large public sector deficits often finance them by increasing the money supply, which, if unchecked, can lead to inflation in the long run. Because Singapore did not have this problem, MAS could focus on managing the exchange rate to foster price stability.

The new policy direction "was aimed largely at maintaining a strong exchange rate for the Singapore dollar, while ensuring sufficient liquidity to accommodate real economic growth," MAS stated in its annual report. "Underlying this shift in emphasis away from targets for interest rates and money supply growth in the conduct of monetary policy is the view that the exchange rate is a relatively more important anti-inflation instrument in the context of the small and open Singapore economy."

The effectiveness of the new exchange rate policy was demonstrated during the second oil shock in the late 1970s/early 1980s, when it proved much more successful in preventing imported inflation than the previous policy had during the first oil shock of the 1970s. During 1981 and 1985, Singapore allowed the nominal effective exchange rate, or NEER, to appreciate by 13 per cent – an average of about 7 per cent a year – in response to a rise in inflationary pressures, mitigating the impact of higher import cost on domestic prices.

When Singapore's first recession hit around 1985, the Singapore dollar exchange rate eased significantly, helping to cushion the effect on the economy and to spur its recovery. As the economy rebounded and inflationary pressures built up quickly, MAS allowed the currency to appreciate in line with the rapid growth of the economy. This decade-long trend of appreciation, from 1988 to the Asian financial crisis, contained inflationary pressures and helped prevent the economy from becoming overheated in the first half of the 1990s, when GDP growth was averaging more than 9 per cent a year.

In the decade that followed, the exchange rate policy proved its efficacy in mitigating the impact of volatile developments in the financial markets and external shocks on the domestic economy while maintaining price stability in the medium term. In times when growth slowed and the outlook was uncertain, MAS adopted a zero appreciation stance in the Singapore dollar so as to provide a conducive environment in which to support growth, even as inflationary pressures were largely subdued. This was on occasion supplemented with greater exchange rate flexibility when financial market conditions were exceptionally volatile. But whenever the economy recovered and incipient inflationary pressures began to emerge, the NEER policy band would be pre-emptively shifted to an appreciating trajectory to counter price rises.

During the Asian financial crisis of 1997–1998, MAS adopted an easier policy stance as well as greater flexibility in the management of the Singapore dollar in recognition of the financial market turbulence and ensuing economic downturn. In 2000, MAS embarked again on a gradual, modest appreciation of the policy band, alongside a strong rebound in the Singapore economy. But that was short-lived, as

a series of shocks that dampened global growth – the dot-com bust and terrorist attacks in the US in 2001 and the SARS outbreak in 2003 – called for an easing in policy stance.

When the economy picked up again in 2004, MAS pre-emptively reinstated the policy of gradual and modest appreciation in the NEER band. This lasted until 2008, when the onset of the global financial crisis prompted a move back to a zero appreciation stance. A decisive end to the crisis came in 2010, when Singapore experienced a record 14.5 per cent increase in GDP. To address this, MAS undertook pre-emptive tightening measures to allow the Singapore dollar to appreciate more quickly, tempering a build-up in inflation.

Why the exchange rate?

Most central banks conduct monetary policy by adjusting the interest rate or the money supply. To stimulate growth, central banks can increase the money supply or lower the interest rate by buying government bonds in the open market. This has the result of making money cheaper and encouraging companies and consumers to borrow more and spend more. To counter inflation, central banks can do the opposite, thus raising the cost of borrowing and reducing spending in the economy.

MAS has eschewed these traditional monetary policy targets in favour of the exchange rate mainly because of Singapore's unusually high reliance on the outside world. Singapore has almost no natural resources and a heavy dependence on imports – which it pays for with its exports – resulting in an uncommonly open economy with negligible import restrictions. Total trade is nearly four times GDP, with both exports and imports each almost double GDP. Imports also make up an extraordinarily large component of Singapore's domestic demand and exports – of every dollar spent in Singapore, about 50 cents leaks out as imports. Because of its extremely small size, Singapore has to be a price-taker in the global markets.

There are two channels by which the external economy affects inflation in Singapore. First, given that Singapore imports much of what it consumes, domestic prices are determined to a large extent by world prices. A stronger exchange rate makes imports cheaper and directly lowers domestic prices.

The second underlying source of inflation in Singapore comes from the rising prices of domestic factors of input, namely land and labour, which are influenced by the strength of external demand. Appreciating the exchange rate leads to lower demand for Singapore's exports and a dip in revenue for exporters, which will reduce their use of industrial space and manpower accordingly. This indirectly results in lower demand for property and labour, moderating rental and wage costs respectively.

Studies have shown that changes in Singapore's exchange rate have a significant impact on growth, exports and inflation.[4] In contrast, the economy reacts less strongly to an equivalent change in the domestic interest rate. Unlike in larger developed economies, where the interest rate is a major factor in determining the level of investment, Singapore relies heavily on foreign direct investment.

Underpinnings of a credible exchange rate policy

Just as some of Singapore's particular characteristics necessitate a unique monetary policy framework, there are several structural factors that have allowed the exchange rate to function effectively as an intermediate target of monetary policy. First and foremost among these is the country's high savings rate. The government's budget surpluses and the contributions of companies and households to the mandatory Central Provident Fund (CPF) savings accounts have resulted in a perpetual withdrawal of liquidity from the system. MAS accordingly injects liquidity into the market by selling Singapore dollars and buying US dollars thereby offsetting government and CPF flows. In the process, MAS builds up foreign reserves, which enables it to intervene in the exchange rate if it comes under undue downward pressure and helps discourage speculative attacks on the currency.

Contrast this with a hypothetical scenario where Singapore's economy and currency tended to be weak and the government ran large deficits. Under this circumstance, using the exchange rate as the main instrument of monetary policy would force MAS to intervene in the opposite direction. It would have to constantly buttress the value of the weakening currency by buying Singapore dollars and selling US dollars. The government's ability to manage its finances well has also made it easier for MAS to fulfil its main central banking function of achieving price stability.

With its accumulated surpluses, Singapore's government stands ready to use fiscal policy to spur growth when necessary. At the same time, Singapore's flexible and self-correcting labour market is able to respond promptly to shocks by, for instance, allowing wages to fall during a downturn. This has relieved the exchange rate policy of the burdens of short-term economic steering and public debt financing, and left it to focus on its core objective of ensuring price stability over the medium term.

A second factor that has contributed to the effectiveness of Singapore's exchange rate policy is the credibility of MAS as a central bank. Its single-mindedness and discipline in focusing on medium-term inflation trends, coupled with its robust reserves, have earned the trust of the markets and the public. Mr Tharman Shanmugaratnam, who is Singapore's deputy prime minister as well as MAS chairman, attributes this credibility to "… a track record that the markets can see, not what we claim or what we state as our policy intent. It is a track record that is easily lost if you deviate from it, even over a short period."

There is another aspect to credibility: the perceived independence of a central bank from its government. Even though MAS is free to set monetary policy without worrying about the public sector's financing needs, some have called into question the autonomy of a central bank with such close links to the cabinet. When MAS was first established, its chairman was Singapore's minister for finance.

Yet the link between MAS and the government has also led to monetary policy being better coordinated with other macroeconomic policies for the overall health and stability of the economy. "The orthodox conventional view is that the central bank is independent, don't interfere. But I think that's too artificial. Getting the exchange rate right must be part of this bigger picture or bigger arsenal. If you are just using it to solve some of the imbalances, I think you are placing a huge burden on your monetary policy and on your ability to set the exchange rate right," says Mr Lim Hng Kiang. "But if monetary policy, fiscal policy and the regulatory environment all work correctly, it becomes mutually reinforcing. Then you just need minor corrections and you are on the virtuous cycle".

What is clear is that monetary policy does not work in a vacuum. It must be complemented with a wider framework of sound and consistent policies, including flexible prices and wages, a deep and efficient financial market, a robust corporate sector and prudent fiscal policy. Indeed, it has been argued that the

success of Singapore's managed exchange rate float lies not in its effective design but on other characteristics of the economy. In the words of American economist Barry Eichengreen: "Singapore has been able to commit credibly to adjusting its monetary policy instruments to limit exchange rate fluctuations because it has had an impeccably strong banking and financial system. It has not had a large stock of non-performing short-term debts in the corporate sector. It has run large fiscal and current account surpluses every year since 1989. It holds large reserves … and its combination of strong growth and flexible labour markets … means that monetary policy adjustments designed to stabilise the exchange rate have not put undue strain on the real economy. Its political stability means that its commitment to hit those exchange rate targets has political support and therefore credibility." [5]

Another way MAS has earned credibility is through its pre-emptive and effective policy decisions. The central bank adopts a medium- to long-term orientation in formulating monetary policy in anticipation of a six- to nine-month lag between implementation and impact. This means it cannot react to every short-term change in economic conditions, as any shift in monetary policy may only be felt half a year later amid a potentially different environment. The medium-term orientation helps to keep the volatility of the exchange rate low, anchoring the economy and providing certainty for businesses and households. Acting in a knee-jerk fashion to adjust the exchange rate in response to short-term changes in economic circumstances may cause greater fluctuations and undermine MAS' primary goal of stable prices.

Despite this, there are occasional calls for MAS to weaken the exchange rate significantly to boost exports whenever there is a temporary dip in economic activity. But MAS holds the view that while doing so may improve export competitiveness in the short term, this cannot be maintained in the long run and sends the wrong signal to exporters. The move is also counter-productive as a lower exchange rate increases the prices of imports, which make up a large component of exports. In addition, devaluing the Singapore dollar for short-term export gain would undermine confidence in the currency and damage Singapore's status as a financial centre. Indeed, it may inject further volatility into the economy, given the role of the Singapore dollar as an anchor of stability.

Although monetary policy has kept its focus trained on price stability rather than demand management, studies by MAS have suggested that it has actually

helped cushion the impact of external shocks on the domestic economy, as shown by its counter-cyclical relationship with the output gap.[6] Since 2001, monetary policy has been eased on three occasions to allow for an orderly weakening of the currency against a backdrop of slow growth and low inflation. Conversely, the exchange rate appreciates when the economy is in danger of overheating, which lowers demand for Singapore's exports and cools wage pressures.

Given the time lag, MAS must be forward-looking in its assessment of the appropriate policy settings for the future six months and ensure adjustments are carefully calibrated. "It's not like other central bank policies where it is practically monthly or at most bi-monthly," Mr Lim explains. "So many things can happen in six months. So you are really setting the economy on a general trajectory in the right direction and you are making minor corrections along the way." Monetary policy decisions therefore should not be "earthshaking" but rather "almost predictable", he adds, with the market already aware of where MAS' intentions lie and "there should not be big surprises along the way".

One recent example that illustrates this principle well is the 2008 spike in inflation in Asia, which stemmed as much from structural shifts in world markets as from cyclical factors such as high oil prices. MAS tightened policy at the end of 2007 and the beginning of 2008, but not as much as some critics thought was necessary. This was because MAS took into consideration, among other things, the emerging uncertainty arising from the US sub-prime crisis in 2008. Further tightening at that time would have made the economy more vulnerable if the external economy declined sharply and suddenly – which it did in the second half of 2008. Simulations done by MAS suggest that if the central bank had tightened policy more in 2007, the economy would probably have seen greater volatility and gone into a more severe downturn eventually.[7]

The "basket, band, crawl" system

Singapore has had a managed exchange rate float since 1973, an intermediate solution between the "corner" solutions of a fixed peg and a completely free floating rate.[8] A tightly fixed peg would tie Singapore's monetary policy too closely to another country's without regard to whether that country's policy is appropriate for Singapore, potentially causing misalignments between the value of the currency and the real economy. It would also make it more difficult for Singapore to absorb external shocks, to which it is particularly vulnerable. On the other hand, a freely floating Singapore dollar may prove too volatile in the short run or become misaligned over the long term. It would also mean giving up the most effective instrument available to Singapore to fight inflation.

Because of the long lags in the monetary transmission process, MAS makes use of an intermediate target to conduct policy. This is a trade-weighted Singapore dollar exchange rate, also known as the nominal effective exchange rate (NEER). There are three main features of the exchange rate system in Singapore, which can be summarised as the basket, band and crawl system (BBC).

First, the NEER is managed against an unpublished trade-weighted *basket* of currencies belonging to Singapore's major trading partners and competitors. This is known as the trade-weighted index. The currencies used and the weight each currency is given reflect the level of Singapore's dependence on that particular country for trade. MAS reviews and revises the composition of the basket from time to time to take into account changes in Singapore's trade patterns. A basket of currencies is used, rather than pegging the Singapore dollar against a single currency, because of the diversity of Singapore's trading partners and sources of imported inflation.

Second, the trade-weighted Singapore dollar is then allowed to float within a policy *band*, the width of which is undisclosed. As far as possible, MAS allows market forces to determine the level of the Singapore dollar within the prescribed band. By establishing a ceiling and floor for the Singapore dollar, rather than targeting a specific shifting value, the NEER is allowed to absorb short-term market volatility, providing more flexibility in managing the exchange rate and limiting any spillover that this volatility might have in the real economy. Effectively, the band works like a filter to shield the small and open economy from external shocks.

Third, the exchange rate policy band is regularly reviewed to ensure that it remains consistent with the underlying fundamentals of the economy. This is the *crawl* feature incorporated in the band, which allows the exchange rate to adjust and avoid misalignments. A study by MAS has found that the real exchange rate does not deviate in a sustained fashion from the equilibrium value of the exchange rate across a variety of measures of this equilibrium value.[9]

As a regional and international financial centre, Singapore imposes no controls over the inflows and outflows of capital by residents and foreigners. Such capital flows are made easier and faster because of the existence of the Asian Dollar Market (ADM), a large foreign currency market that dwarfs the domestic banking system in size. Assets in the ADM are denominated in foreign currencies and there are no controls on capital flows between the ADM and the domestic banking system, allowing holders of Singapore dollars to easily convert them into foreign currency deposits and vice versa.

Against this background of free capital movements, the choice of the exchange rate as the main instrument of monetary policy necessarily implies that MAS cedes control over domestic interest rates and money supply – an "acceptable" trade-off in Singapore's context. MAS does not attempt to control the level of domestic interest rates, confining itself to dampening excessive interest rate volatility. Singapore dollar interest rates are therefore largely determined by foreign rates as adjusted for market expectations on the future movements of the Singapore dollar.[10] Similarly, changes in domestic money supply are endogenous outcomes of the exchange rate-centred monetary policy and reflect the evolution of economic activities in Singapore. MAS monitors interest rates and the money supply closely for economic surveillance, as well as to ensure sufficient liquidity in the system for regulatory and settlement purposes rather than for use as a monetary policy tool.

Formulation of monetary policy

MAS has three levers for adjusting monetary policy: the slope, width and level of the band. It can adjust the slope of the band to make the currency appreciate more or less quickly, shift the entire band upwards or downwards, or increase or reduce the width of the band. Traditionally, MAS has chosen to only adjust one lever at a time, with only two exceptions: in April 2010, when it shifted the whole band upwards and steepened the slope at the same time, and in October 2010, when it simultaneously steepened the slope and widened the band. These anomalous decisions followed an equally unprecedented economic rebound amid abundant liquidity conditions after the global recession of 2008 to 2009.

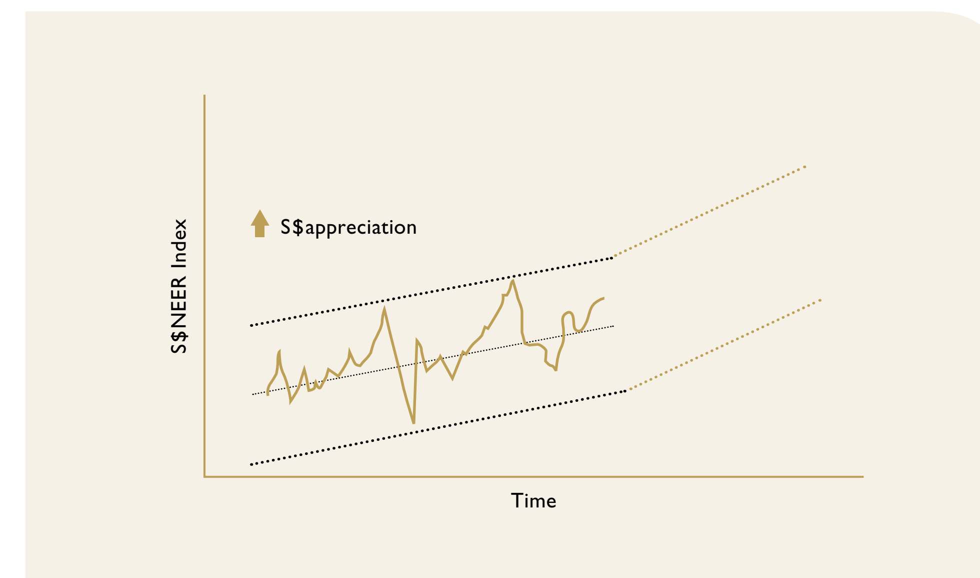

Chart 1: Changing the slope of the policy band. The example above shows how the policy band can be shifted to a stronger rate of appreciation.

As a general rule, MAS changes the slope of the band in response to changes in the economic situation that are expected to persist for some time. During the dot-com bust in 2001 and subsequent economic slowdown, MAS eased the slope of the band from a modest appreciation of the Singapore dollar to a zero-appreciation stance. Conversely, in October 2007, rising commodity prices coincided with a period of continued steady global growth. Although the economic expansion was expected to moderate, MAS anticipated that inflationary pressures – both from external sources as well as a tight domestic labour market and rising property values – would continue. To counter the expected higher inflation, MAS increased the slope of the NEER policy band slightly.

The second method, shifting the entire band, is employed in reaction to more significant developments in the economy. Following an increase in the slope of the policy band in October 2007, inflation continued to rise, reflecting persistent external and domestic cost pressures. Against this backdrop in April 2008, MAS re-centred the exchange rate policy band upwards without changing its slope or width. The assessment was that an upward shift of the policy band would help moderate inflation going forward, while providing support for sustainable growth in the

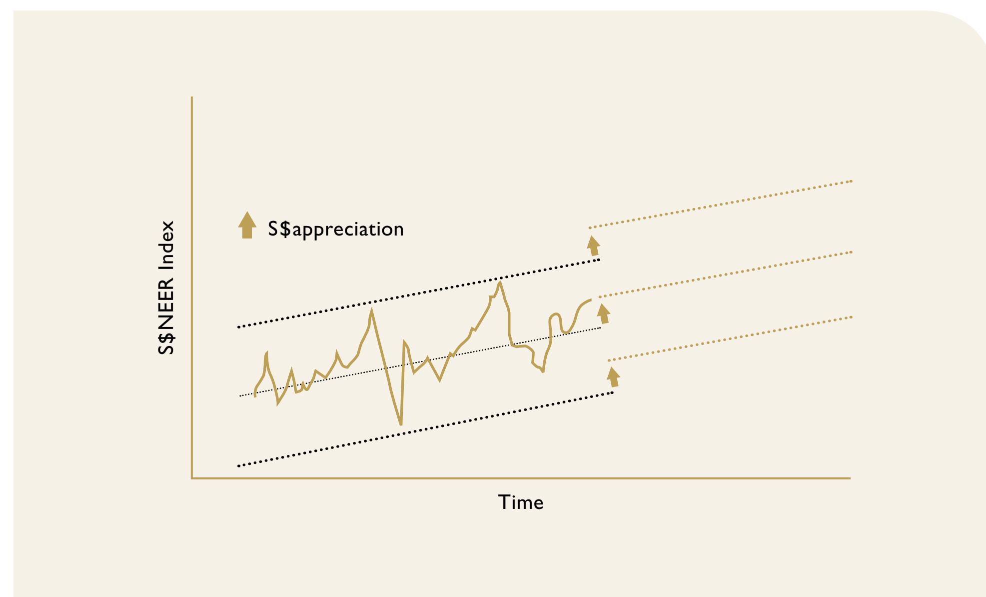

Chart 2: Changing the level of the policy band. The example above shows how the policy band can be re-centred at the current level of S$NEER.

economy. Another instance of a shift in policy band was during the aftermath of the SARS outbreak in 2003. When SARS broke out in 2003, causing a sharp but short slowdown in the economy, the policy band was re-centred at a lower level to support the incipient recovery.

Changing the width of the band, the third method, is a rarer phenomenon and is usually used in reaction to market-driven movements that cause artificial strengthening or weakening of the currency. For instance, during the Asian financial crisis of 1997 to 1998, most Asian currencies plunged as a result of speculative attacks and a dramatic loss of confidence overnight. The Singapore dollar also fell but by a smaller amount, resulting in a spike in the currency in trade-weighted terms. But instead of weakening the currency to counter the artificial strength, MAS reacted at first by changing the width of the band to increase flexibility and accommodate what was anticipated to be short-term volatility of the exchange rate. Only later, when the situation had stabilised and it became clear that the crisis would lead to significantly weaker prospects for inflation and growth, did MAS decide to ease the policy. Similarly, when the September 11 terrorist attack in the US in 2001 crashed financial markets around the world and caused great uncertainty in the external environment, MAS widened the

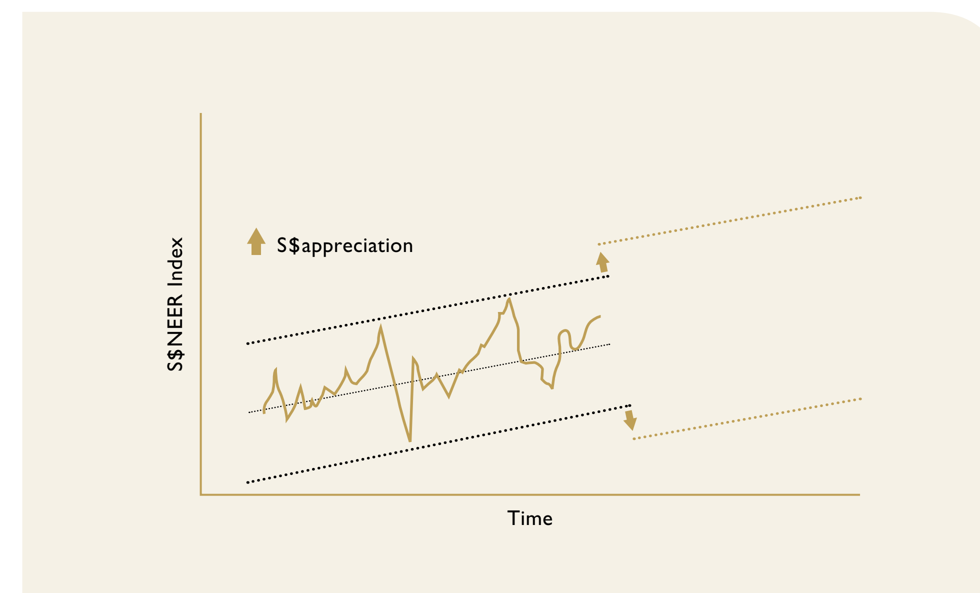

Chart 3: Changing the width of the policy band. This example shows how the policy band can be widened to allow for greater flexibility.

band to accommodate greater fluctuations in the NEER. When market and economic conditions stabilised, the band was narrowed again.

MAS reviews its monetary policy stance every six months, during April and October of each year. But the Economic Policy Group (EPG) constantly monitors the Singapore economy, inflationary pressures and the external environment in between the reviews. It makes use of various tools, such as spreadsheet models for the various sectors and the macroeconometric Monetary Model of Singapore (MMS), to provide economic projections and lay the foundation for policy analysis. The MMS – a mathematical representation of Singapore's macro economy involving more than 200 equations, including its trade linkages with the rest of the world – is employed to assess the impact of alternate policy settings under different circumstances. These assumptions are based on forecasts about key variables relevant to monetary policy, such as the expected economic growth in Singapore's major trading partners, the rate of both domestic and external inflation, global commodity prices, and the foreign demand for goods that Singapore exports.[11]

In addition to the analysis of macroeconomic data and policy simulations, MAS also obtains feedback from a range of companies representing the key sectors of

Mr Lim Hng Kiang, current deputy chairman MAS, at the Introduction to the Macroeconometric Monetary Model of Singapore, 2 February 2000.

Singapore's economy about the near-term prospects for growth and cost pressures. It also consults with trade federations, business chambers and other entities.

Taking all these factors into consideration, EPG will formulate a particular policy path to ensure price stability over the medium term. The associated analysis and policy recommendation will be presented for approval to the Monetary and Investment Policy Meeting (MIPM), which is the MAS equivalent of the Monetary Policy Committee at other central banks. The MIPM comprises the chairman, deputy chairman, selected board members, and the managing director.

Execution of monetary policy

The implementation of monetary policy is undertaken by the Monetary and Domestic Markets Management Department (MDD). This is kept separate from the formulation of monetary policy, which is done by EPG, so as to keep monetary policy decisions unencumbered by the short-term implementation considerations.

MDD watches the NEER closely to ensure that it moves within the band in an orderly way. While it prefers to leave the level of the exchange rate to be determined by market forces within the band, it will intervene in the event of excessive volatility to calm the markets, and also to defend the bounds of the band when necessary.

Interventions in the exchange rate are carried out through the sales or purchases of the US dollar in the foreign exchange markets. If the NEER approaches the top bound of the band, MDD sells the Singapore dollar against the US dollar to prevent the NEER from breaching the policy band. On the other hand, if it falls towards the floor of the band, MDD buys the Singapore dollar against the US dollar. The magnitude and frequency of these intervention operations are not announced.

MDD then undertakes money market operations, which are geared toward ensuring that there is sufficient liquidity in the banking system to meet banks' demand for reserve and settlement balances. Such operations are performed with a variety of instruments, including foreign exchange swaps. MDD also makes use of direct lending to or borrowing from banks, issuances or redemptions of Singapore Government Securities (SGS), and repurchase agreements (repos) on SGS. In July 2010, MAS announced that it would start issuing short-term MAS bills from the second quarter of 2011. These bills are meant to be negotiable, so that banks that need liquidity can sell or pledge them as collateral in interbank repo markets as well as in the MAS Standing Facility. This provides MDD with another instrument to manage liquidity.[12]

On a day-to-day basis, MDD keeps a close eye on money market rates as an indicator of orderly market conditions. It assesses and estimates the key money market factors for the day and conducts its main money market operations at 9.45 am. For the rest of the day, it monitors the monetary conditions of the banking system and, if necessary, carries out further money market operations at about 2.30 pm.

MDD reports its foreign exchange intervention and money market operations at the bi-weekly MIPM. When the Singapore dollar is particularly volatile and foreign exchange markets are exceptionally turbulent, the department also provides regular updates on Singapore dollar developments in between the fortnightly MIPM meetings. In addition, EPG conducts semi-annual reviews of MDD's foreign exchange

intervention and money market operations in conjunction with its formulation of the exchange rate policy.

Communication

As recently as 2000, MAS only announced its monetary policy decisions after the fact, in its annual reports. But with the turn of the century, central banks around the world began to shift towards adopting greater transparency in monetary policy. This was aimed at reducing unpredictability and increasing confidence. In line with this, MAS started actively communicating its monetary policy decisions in 2001. Apart from announcing policy decisions as they are made, MAS also elaborates on its policy goals, operating procedures, and the rationale behind each decision. This has promoted greater clarity and understanding among the markets, reduced uncertainty and volatility, and helped to strengthen the effectiveness of monetary policy.[13]

Today, MAS' monetary policy stance is communicated to the outside world via three methods. The first and main channel is the twice-yearly Monetary Policy Statement, released in April and October every year to coincide with the actual review of monetary policy. It recaps the performance of the NEER over the last six months and sets out the policy parameters for the following six months. The bounds of the band are not revealed, nor are the weights of the different currencies in the trade-weighted basket; this allows MAS some constructive ambiguity in managing the exchange rate within the policy band.

The second channel is the twice-yearly Macroeconomic Review that MAS releases in conjunction with the Monetary Policy Statement. MAS' economists conduct an in-depth analysis of the global and local economies, assess the outlook for growth and inflation and give the rationale for the most recent monetary policy decision. Lastly, MAS also carries out closed-door briefings for the Singapore media and private sector analysts when it releases the Macroeconomic Review.

Interestingly, the increased transparency of the policy band may have contributed to a greater stability of the exchange rate, says Mr Tharman. "Market players have a good sense of where the policy bands are although we don't publish the exact slope or width of the bands. We put out a carefully crafted monetary policy statement twice a year and the market has developed its own way of calculating where the projected path of the exchange rate is … so you see some stability in the exchange rate within the band at most times. When they think the Singapore dollar is veering off from what they see as MAS' policy band, that's an opportunity for them to step in and take it to where they expect MAS wants the currency to be. But MAS retains just enough ambiguity in its exchange rate policy bands, to give it the flexibility that it sometimes needs, especially in abnormal market conditions."

Familiarity with MAS' methods may also have allowed the markets to be more understanding when the exchange rate needs to be lowered, and reduced the likelihood of opportunistic speculative actions, says Mr Lee Hsien Loong, the current prime minister of Singapore who was the chairman of MAS from 1998 to 2004. "The sensitive part is how to manage a downward adjustment, and from time to time we have had to do that. It's very difficult to put out a statement that says, 'Over the next one year, we will be on a slight downtrend.' The psychology is quite different. The way MAS has usually done it is to let it float down to the lower end of a range and then we will say, 'We are already there, and we have re-centred the band.' I think the market players understand the game and they have decided not to test us, which is just as well."

Outcomes of monetary policy

Since its introduction, the exchange rate policy has worked well with other macroeconomic policies to achieve MAS' objectives of low inflation and a strong currency in order to provide a basis for sustainable economic growth.[14] Steering the exchange rate within a band has kept the value of the Singapore dollar relatively stable over the past two decades. The currency has also appreciated steadily over time against most major currencies, which has helped keep inflationary pressures in check.

Singapore's inflation rate has stayed consistently lower than that of the OECD countries for much of the past few decades. Between 1962 and 1980, Singapore's inflation averaged 4.1 per cent a year, compared with the OECD average of 7 per cent. Between 1981 and 2010, Singapore's average annual inflation had more than halved to 1.9 per cent, compared with the OECD average of 5.4 per cent (*see chart 4*).

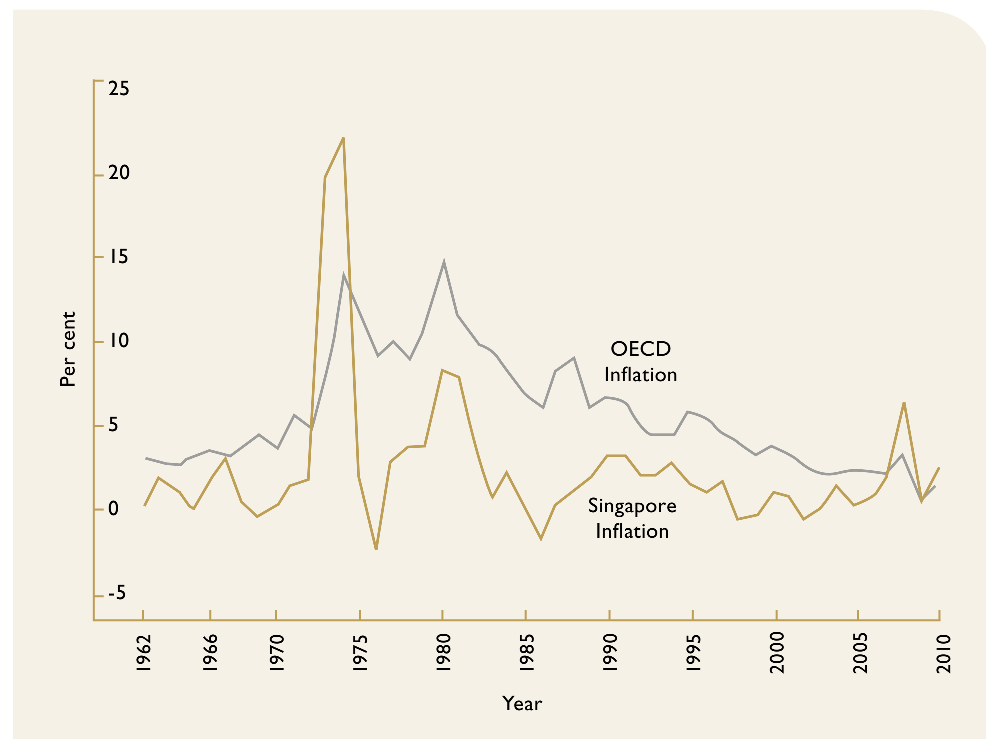

Chart 4: Singapore's inflation vs OECD inflation. (Source: Singapore Department of Statistics, OECD)

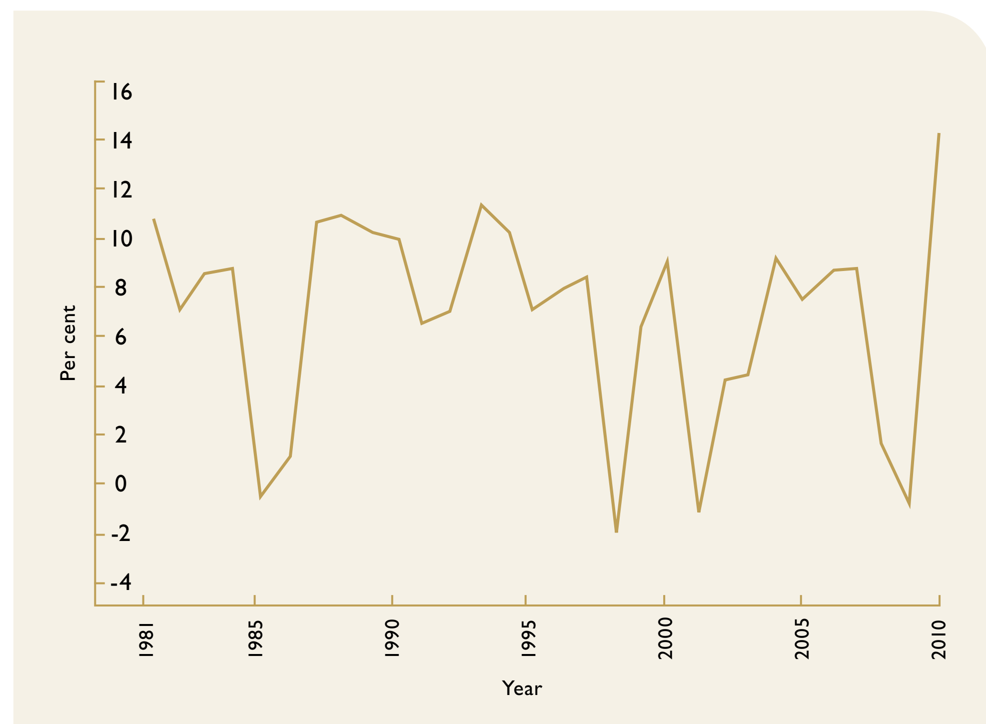

Chart 5: Singapore's GDP growth. (Source: Singapore Department of Statistics)

Apart from being low, inflation in Singapore has also been stable compared to developed countries. The standard deviation of Singapore's inflation between 1981 and 2010 was on par with that of the US and lower than the OECD average.

Against this backdrop, Singapore has enjoyed robust economic growth. Gross domestic product has grown by a healthy 6.9 per cent a year on average between 1981 and 2010 (*see chart 5*).

Although these outcomes are not to the sole credit of monetary policy, they serve to highlight the suitability of the exchange rate as Singapore's key monetary policy instrument. They also illustrate MAS' success in implementing appropriate and credible monetary policy with a medium-term orientation for the Singapore economy.

New challenges and issues

While Singapore's exchange rate regime has contributed to mitigating the effects of the external shocks on the overall economy and providing favourable conditions for economic growth, new challenges have emerged as the economy matures. "The economy is entering a mature phase of growth. Constraints in labour and other resources will lead to persistent cost pressures, making the management of the exchange rate a lot more tricky", says current MAS managing director Ravi Menon. The economy's underlying growth potential has slowed to a pace of about 3 to 5 per cent a year. "For an economy that is used to much higher rates of economic growth, this is not a trivial transition," Mr Menon adds. At the same time, the Singapore government's efforts to limit the economy's dependence on foreign labour are likely to lead to an increase in costs, at least until productivity growth increases. "So it makes the task of maintaining overall price stability all that much more challenging," explains Mr Menon. "I think we would need to be more watchful of inflation over the next 10 years."

The other main challenge in monetary policy is dealing with asset price inflation. Concerns over the spectre of asset price bubbles in Singapore and other Asian economies have emerged more frequently in recent years in light of the exceptionally low interest rate environment and growing affluence in the region.

For central banks, the crux of the matter is this: even if monetary policy manages to foster steady economic expansion and low inflation, it does not guarantee financial stability – a grim fact borne out in the global financial crisis of 2008–2009. In fact, as early as 1997, Dr Richard Hu, then minister for finance and chairman of MAS, made these prescient remarks: "While central banks seem to have successfully tamed consumer price inflation, the spectre of asset price inflation continues to haunt many countries. Central banks are still grappling with the issue of how to deal with rapidly rising asset prices against a background of relatively stable consumer prices. This could well be the main challenge facing central bankers in coming years."[15] Indeed, dislocations in asset prices can "lead to far bigger misallocation of resources and can be much more disruptive to economic growth than consumer price inflation", says Mr Menon.

In the case of Singapore, even with future growth likely to ease from historical highs, the expectation for sustained stable growth has created a foundation for the continued appreciation of the Singapore dollar, which has led to persistently low interest rates in Singapore compared to the US. This fuels bouts of speculative activity in the property and stock markets from time to time. Since Singapore does not have a domestically-oriented monetary policy, it has had to come up with other measures to address asset bubbles, as Mr Tharman explains. "We have always had to wrestle with the fact that the asset markets, meaning the property and the stock market especially, are influenced by domestic monetary conditions and interest rates in particular. As Singapore has a healthy economy, it has seen a strengthening of its currency over the long term," he says. "The market builds it into its expectations of the exchange rate, and as a result keeps interest rates lower for the Singapore dollar compared to the US dollar. But that also means there is a tendency from time to time for excesses in the asset markets to build up."

This in fact is the dilemma of all open economies that are exposed to large capital flows, says Mr Lee. "It is a big problem for us. When you have very strong capital flows coming in, there is always the risk that our own capital markets, our stock market, our property market will over-inflate, never mind the impact on price stability for goods and services. Even now one of the reasons the property market is so buoyant is because too much liquidity is sloshing around the region and interest rates are too low. And nobody has found a good solution to that."

Central banks that have a domestic monetary policy, targeting for instance the interest rate or money supply, have more direct channels to temper asset price inflation, although they have also generally found it difficult to do so, in view of the problem of identifying an asset bubble ex ante as well as the collateral damage resulting from the tightening in monetary policy. In Singapore, however, the exchange rate regime has entailed the development of other, non-monetary policy instruments to tackle asset bubbles – property in particular, as stock markets are generally left to their own devices to correct. "You can't have one policy instrument serving too many targets," says Dr Teh Kok Peng, a former deputy managing director of MAS. "For Singapore, given the exchange rate base policy, you can't raise interest rates to curb the overheating on housing because if you do, you have effects on the exchange rate. And we thought the best way to do it is through regulatory means, through MAS telling the banks that now there has to be more downpayments (in cash, on home purchases)." Property dampening measures that have been employed by MAS and the Singapore government in the past include reducing the quantum of loans that banks are allowed to give for mortgages, requiring higher downpayments, and implementing specific regulations targeted at eliminating speculative activities.

As a financial centre, Singapore inevitably has to intermediate large capital flows, which could be potentially destabilising to the domestic economy. Excessive inflows – or, for that matter, outflows – could also pose difficulties for the management of liquidity. Singapore's openness to capital flows means the economy has very little control on capital movements, but MAS must demonstrate its ability to defend its position, says Mr Lee. "It's not just capital flight but also capital inflows, which are equally problematic to assess and manage. In unstable circumstances the amounts of inflows as well as the amounts of outflows are very large. And so MAS has to consider several issues very carefully – how is it going to manage these inflows and outflows? How much official foreign reserves to maintain? And how to show the market that there is ample ammunition and this is a sound position which you should not test?"

Current MAS deputy managing director Ong Chong Tee also weighs in on the links between managing liquidity and operating monetary policy: "Our monetary policy and liquidity management functions will be more intertwined given that Singapore is a small, open economy that is subject to global capital flows. This also implies a need to deepen our understanding of the linkage between our price

stability and financial stability objectives, and their aggregate impact on other macroeconomic variables. As Singapore's economic structure evolves, our monetary policy framework will need to keep abreast of the changes."

However, the issue of large capital flows cannot be dealt with by monetary policy alone. Singapore's sound banking system, together with deep and liquid financial markets, has contributed to the efficient intermediation of these flows. The removal of restrictions on capital movements has also allowed excess domestic savings to be taken abroad, thus reducing the build-up of excessive liquidity in the domestic financial system. As governments worldwide discuss stricter financial regulations in the wake of the global financial crisis, the future landscape of financial services could also be altered significantly and the flow of funds across the global economy moderated.

There have also been concerns raised over whether the exchange rate-based framework needs to be modified to reflect the changes in the structure of Singapore's economy, which has evolved significantly in the 30 years since the exchange rate policy was first adopted. Observers have suggested that MAS shift its monetary policy framework to centre around interest rates instead, putting it in line with other major central banks.

The current monetary policy framework, with price stability as its objective and the exchange rate as its main instrument, remains relevant and appropriate for Singapore. But this bears close watching as the global and domestic landscapes continue to evolve over the years, says Mr Tharman. "We have to keep looking at that afresh, whether there is merit and scope to supplement an exchange rate-oriented policy with secondary instruments," he says. "Or whether we are still better off sticking to an essentially pure exchange rate-oriented policy. That is something we got to keep looking at because the sources of inflation keep evolving and that includes asset market inflation."

As Singapore progresses towards its goal of becoming a global city, attracting more talent and capital along the way, new and greater pressures could be brought to bear on the exchange rate and asset prices. With these developments, the constant and dependable relationship between changes in the exchange rate and the effects on inflation may accordingly shift. It is essential that MAS continues to carefully monitor the outcomes and effectiveness of monetary policy in maintaining the foundation for stable prices, a strong currency and sound economic growth.

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Three

A SOUND SINGAPORE DOLLAR

It is sometimes said that there is a near-paranoia within the corridors of MAS about the Singapore dollar. Many of its officers live and breathe the currency as part of their daily working lives, worrying about its current value and trying to understand what might affect its future path. This may sound like an exaggeration, but it underscores the paramount importance of a strong and stable currency – not just to MAS, but to the whole of Singapore, as a small economy dependent on trade for its survival.

Because Singapore is a big importer of goods and services, a healthy dollar is the central focus of the nation's monetary policy, helping to keep domestic inflation at bay. It also keeps its citizens' long-term savings from eroding over time, particularly Central Provident Fund (CPF) savings meant for housing, healthcare and retirement. This policy has produced a virtuous macroeconomic cycle: it allows inflation to be kept low, laying the ground for sustained economic growth, which in turn provides the foundation for the continued strengthening of the Singapore dollar. But the currency has come to mean much more than that to a tiny, young nation.

In the early years of nationhood, the government recognised that a stable currency was one of the most visible outward symbols of economic stability, especially during the tumultuous decade of the 1970s, when much of the world was grappling with macroeconomic disarray. If Singapore was not economically stable,

foreign multinationals would not have set up their factories here and kickstarted the miracle of Singapore's rapid economic development. Later, as Singapore developed ambitions to be an international financial centre, the stable currency helped to attract regional and global investors who saw the island republic as a good base from which to manage their assets.

This chapter demonstrates how the importance of preserving confidence in the Singapore dollar has fundamentally guided MAS' operations. This theme was evident from the time MAS was established, when a conscious decision was made not to give the organisation the ability to issue currency, so as to assure foreigners that Singapore's new central bank would not print money freely without adequate backing. Various events such as the floating of the Singapore dollar in 1973, the complete removal of exchange controls in 1978 and the response to the 1985 speculative attack on the currency serve as illustrations of this. A section of the chapter is dedicated to the non-internationalisation policy of the Singapore dollar and the subsequent relaxation of this policy, which parallels MAS' evolving attitudes towards the liberalisation of the Singapore dollar. The chapter ends by summarising the reasons behind MAS' success in maintaining its strong dollar policy.

Singapore's currency: The early days[1]

Singapore was founded in 1819 by Sir Stamford Raffles and joined Malacca and Penang as part of the Straits Settlements in 1826. No separate currency was issued for the Settlements; instead, a variety of silver coins, including the Mexican dollar, Spanish dollar, Indian rupee and Dutch guilder, was used for transactions within the Settlements. This arrangement was legalised in 1867, when the Straits Settlements became a British Crown Colony. Silver dollars obtained legal status in Singapore, which remained under the Silver Standard arrangement until about 1903.

These silver currencies entered Singapore through the settlement of trade transactions at the port. As the island developed into a bustling trading centre, however, silver dollars often ran short and it became clear that relying on trade settlements as a source of currency would be inadequate to meet the needs of the growing economy. Thus, from around 1850, private paper notes began to be issued by specially-licensed banks – the Asiatic Banking Corporation; the Oriental Banking Corporation; the Chartered Bank of India, Australia and China; the Hong Kong and Shanghai Banking Corporation; and the Mercantile Bank of India, London and China. The notes were mainly used to facilitate trade between the Straits Settlements and the home countries of the banks that issued them. It was not long before that the notes were widely accepted and circulated alongside silver currencies for domestic transactions.

However, confidence in the bank notes faltered along with the failures of the Asiatic Banking Corporation in 1866 and the Oriental Banking Corporation in 1884. In 1897, after much consideration, the British set up the Board of Commissioners of Currency for the Straits Settlements. Two years later, the first legal tender government currency notes were issued, redeemable on demand for their equivalent in silver coins.

The next currency milestone took place in 1906, when the Straits Settlements adopted the Gold Standard with the aim of promoting exchange rate stability. This proved short-lived, however, as the start of World War I put a halt to the convertibility of gold in Europe and stopped gold shipments. The Straits dollar also ceased to be convertible to gold, ending the currency's link to the Gold Standard and replacing it with a formal peg to the sterling, which lasted until 1967.

In 1939, the Straits Settlements currency was replaced by the Malayan dollar. Again the outbreak of war – this time, World War II – threw a spanner in the works of this new arrangement. During the three years that the Japanese occupied Singapore and the rest of Malaya, people were forced to use the Japanese "banana money", but the currency became worthless when the war came to an end in 1945. British forces reoccupied Singapore on 5 September 1945 and immediately circulated new coinage, first releasing coins minted in 1943 and 1944 and then minting fresh coins bearing the date 1945.[2] New currencies of the following denominations: 1-cent, 5-cent, 10-cent, 20-cent, 50-cent, 1 dollar and 10 dollar dated 1 July 1941, and 50, 100, 1,000 and 10,000 dollar dated 1 January 1942 – printed in Britain before or during the Japanese occupation of Singapore – were also released. In addition, the 10-dollar notes issued by the Board of Commissioners of Currency, Malaya, in 1940 were declared legal tender, as were the old Straits Settlements notes, save for those of the 10-cent, 25-cent, 1,000-dollar and 10,000-dollar denominations. Over time, the old

Top: Foreign coins used in the Malay Peninsula and Borneo. Second row: First paper money in Singapore. Third row: Official currencies of the Straits Settlements. Bottom: Currencies of the Board of Commissioners of Currency, Malaya (1940–1951).

Above: Some examples of the orchid series currency notes (1967–1976). Left: Some examples of Singapore's first coin series.

notes were gradually taken out of circulation as the new issue was sufficient to meet Singapore's needs.[3]

In 1950, a new currency arrangement was set up, under which Sarawak and British North Borneo were included as partners under the existing joint-currency arrangement of Malaya and Singapore (as they became known after the war, having been reconfigured from the pre-war Straits Settlements, Federated Malay States and the Unfederated Malay States).[4] On 1 January 1952, the Board of Commissioners of Currency, Malaya and British Borneo, was established as the sole currency-issuing authority for the Federation of Malaya, Singapore, Brunei, British North Borneo and Sarawak. The currency in circulation at the time was the Malaya and British Borneo dollar, the predecessor of the Malaysian ringgit. Singapore continued to use this currency for a few years after it gained independence in 1965.

The first big currency dilemma occurred in 1967, two years after the political union between Malaysia and Singapore broke down, and Singapore gained independence. On 12 June that year, the 29-year currency union of Malaysia, Singapore and Brunei came to an end, with each country deciding to issue its own currency. Singapore then established the Board of Commissioners of Currency,

Then Finance Minister Lim Kim San (fourth from left), with the inaugural board of BCCS, announced at a press conference that Singapore's new currency will be issued in June 1967.

Queue at BCCS to exchange new Singapore currency, which was issued to banks and the public in 1967.

Singapore (BCCS), whose sole responsibility was to issue the new Singapore dollar. The first Singapore currency notes, popularly known as the Orchid series, were released in June 1967 under the new BCCS after being printed in the UK, remembers Mr Han Eng Juan, the first chief executive of BCCS. "It was quite an achievement … to have these printed and shipped out to Singapore within a fairly short period of time, in order for them to be issued in June 1967."

On 18 November 1967, the UK announced the devaluation of the pound sterling by 14.3 per cent[5], a result of intense speculative pressures as the country grappled with sluggish economic growth and relatively high inflation. This meant that the old common currency, at that time still in circulation and fully backed by the sterling, had to be devalued. But Singapore, Malaysia and Brunei decided not to do the same for each of their new currencies – another sign of the absolute importance policymakers placed on the strength of the local currency. This meant the old currency notes could only be exchanged for the new Singapore dollar at a discount equal to the fall in the sterling – one dollar in the old currency would fetch about 85.7 cents in the new Singapore currency, recalls Mr Han. "So there was this switch," says Mr Tang Wee Lip, then the manager of the Banking Department, of the awkward gulf in the values of the old and new currencies that year. "It was … to show to everybody, to say the new currencies are very strong, but the old currency, because the backing was in sterling, had to be devalued. This was the stand that was taken in the '60s to give a show of strength."

The new currencies of Singapore, Malaysia and Brunei, though separate, remained fully interchangeable at par value under an Interchangeability Agreement, which allowed for the three currencies to be customary tender in all three countries. This lasted until 8 May 1973, when the Malaysian government opted out of the arrangement. Brunei and Singapore, however, have continued with the agreement to the present day.

The currency board system

The responsibility of keeping the Singapore dollar stable and strong was entrusted to MAS, which was set up in 1971 against a backdrop of exceptional turbulence in global currency markets. The post-war Bretton Woods system of fixed exchange rates was beginning to break down as countries started making independent currency decisions on the one hand and becoming more financially interconnected on the other. In the US, the dollar was coming under immense pressure as a result of rising inflation and growing trade and budget deficits. In August 1971, just months after MAS was formed, the US closed the gold window and devalued the dollar, removing the backbone of Bretton Woods and plunging international currency markets into turmoil. A year later, the UK floated the pound sterling.

In political terms, the 1960s and early 1970s were also tumultuous times. Several countries in Asia and Africa had newly gained independence or were fighting for it. Some of the new governments were characterised by instability and gained a reputation for corruption. Having witnessed these events, the Singapore government was determined to stand apart from other newly independent states. To begin with, it recognised the importance of instilling strong confidence in the Singapore dollar. This led to the setting up of the Monetary Authority of Singapore as just that – a monetary authority and not a full central bank. MAS was deliberately deprived of the major central bank function of issuing currency.

Instead, the responsibility of issuing the new Singapore dollar remained with BCCS, under a currency board system that had three main features: it fixed the exchange rate between the Singapore dollar and a specified foreign currency, allowed domestic notes and coins to be fully convertible at the relevant fixed exchange rate, and backed the Singapore currency fully by foreign assets or gold.[6]

The aim of keeping currency issuance separate from MAS was to assure Singaporeans and foreign investors that the central bank would not freely print money according to its whim. Instead, every Singapore dollar issued by BCCS would be fully backed by gold and foreign assets under the currency board system. Mrs Elizabeth Sam, then the chief manager of the Department of Investments and Exchange Control, sums up the position: "I think the whole objective was really confidence – that people would have confidence in a Singapore dollar that was one hundred percent backed by foreign reserves rather than this concept of a central bank with money creating capabilities. So because it wasn't going to be a central bank, I think the Monetary Authority of Singapore was actually the tentative name which the IMF advisors put in the draft. And that was the name we eventually ended up with."

Former MAS chairman Goh Keng Swee, in particular, was insistent that MAS not be set up as a central bank because he believed there were negative associations with the phrase "central bank" then. After the British colonial system began to pull back, there were several countries in Africa and Asia that became independent, says Mr Tang. "At that time, a lot of African countries were also setting up central banks and some had a reputation of printing money. We didn't want to fall into the same group."

Part of the reason for the strict discipline was Singapore's particular need to prove that it could survive and thrive after separating from Malaysia. "I think that was an important part of what they wanted the Singaporean and the world to see. That they were going to be very rigorous and tough," adds Mrs Sam. "At that point there was a lot of worry about whether Singapore would survive as a country." The Singapore government was also determined not to run budget deficits, and therefore saw no need for MAS to have to print money. Still, this position was unique – Dr Richard Hu, former chairman and managing director of MAS, recalls that only a few countries operated a currency board system. "But that basically ensures that the monetary base is not destroyed by excessive issue of currency," he explains.

Barely two years into MAS' existence, the central bank was forced to make a difficult decision about what to do with the Singapore dollar as the chaos in currency markets came to a head. In June 1973, the Bretton Woods system of fixed exchange rates finally collapsed, forcing currencies around the world to abandon their pegs and shift to floating exchange rates. The sterling was floated in 1972 following intensive speculative activity and a massive flight out of the currency. Other currencies, however, such as the German deutschemark and the Japanese yen, were appreciating, as was gold.

With the floating of the US dollar and the pound sterling, the values of the major currencies were fluctuating on a day to day basis and it was impossible for Singapore to keep buying or selling these currencies at a different pace each day in order to maintain the value of the Singapore dollar at a fixed rate. Singapore was also seeing large capital inflows as investors fled from the volatile US dollar and pound sterling and into other appreciating currencies. "It was felt at some point it was no longer sustainable," Mrs Sam recalls.

Automated stocking of currency at Currency House.

On 17 March 1973, MAS announced that the Singapore dollar was to be maintained at a parity of 0.290299 grams of fine gold. But amid heightened market volatility, the Singapore dollar was allowed to float just three months later on 21 June 1973, although not without grave apprehension on the part of MAS. Mrs Sam remembers the uncertainties surrounding the decision to float the Singapore dollar: "(There was) fear of how you would manage it. Fear of a volatile currency, the impact on the economy and on trade and business. And what happens if the reverse would take place, the outflows? You had now inflows; you could have outflows as well." Still, she says, the end of the fixed exchange rate regime worldwide made this move seem almost inevitable. "I guess there was a worry, but … if everybody was floating, what could you do?" Almost immediately after the Singapore dollar was floated, the currency began to appreciate. "I remember the first day when we floated and we had to go out into the market and intervene. It was quite frightening to find out, 'Oh, we've got so much already (of dollars).'"

The volatility of fund flows posed clear challenges to MAS' mandate to keep the Singapore dollar stable. So it was decided in 1975 that the currency should be a managed float as opposed to a free float. In recognition of Singapore's dependence on trade with other economies, the managed float consisted of a basket of currencies belonging to its major trading partners. In 1981, Dr Goh formalised the exchange rate policy under Singapore's monetary policy framework and implemented a "strong dollar policy" as the best way to tackle inflation and preserve the purchasing power of the currency.

Singapore maintained the currency board system until 2001, putting it in the unique position of being the only independent state to retain such a "colonial relic", as Dr Goh put it. This anachronism persisted through the introduction of electronic finance for three key reasons, which Dr Goh outlined in a speech in 1992.[7]

First, the system announced to the financial world that Singapore's objective "was to maintain a strong convertible Singapore dollar" as the best protection against inflation, much of which is imported in Singapore. The second aim was to inform Singaporeans that "if they wanted more and better services, they must pay for these through taxes and fees". The central bank would not simply print money for government spending in the belief that this would promote prosperity. Lastly, Singapore wanted to show academics, both local and foreign, that what was fashionable in the West might not have been in Singapore's best interests. In Dr Goh's own words, "a perceptive mind is needed to distinguish the peripheral from the fundamental, transient fads from permanent values".

By 2001, however, confidence in the Singapore dollar had become sufficiently entrenched that the need to divorce the central bank from the function of issuing money was no longer seen as relevant. With the floating of the Singapore dollar in 1973, and the decision to stop allowing domestic notes to be converted into gold and other foreign currencies (and vice versa) on demand in 1982, two of the three key features of the currency board system had in effect already been removed. Only one function remained: that of fully backing the Singapore dollar with external assets.

In 2002, BCCS finally merged with MAS and transferred all its assets to the latter, with the aim of increasing efficiency and eliminating duplicate functions without compromising its objectives.[8] Plans for such a merger had actually begun as early as 1980, but were halted when Dr Goh took over and reorganised MAS,

recalls Mr Lau Kim Boo, the former general manager of BCCS. With the absorption of BCCS, MAS became a full-fledged central bank for the first time. All currency in circulation continued to be backed at least 100 per cent by external assets in a separate and distinct currency fund, as required under the Currency Act.

The merger of BCCS and MAS was carried out without much fanfare, which was itself a reflection of the high level of confidence in the strength and management of the Singapore dollar. Mr J Y Pillay, a former deputy chairman and managing director of MAS, recalls that the merger was done so inconspicuously, he hardly noticed it. "I was in the UK at that time, but that's no excuse because I used to have all the information coming to me," he says. "Now, you know, it may well be that somebody, if not an MP, an NMP or someone would say: 'What's happening? Are we going to loosen our monetary policy? Is this a sign of incipient price instability?' But at that time, not a squeak from anywhere and not even remarked upon in the international media."

Liberalisation of exchange controls

Another demonstration of the international community's confidence in the Singapore dollar was seen when MAS began the gradual process of removing exchange controls on the currency. Exchange controls are restrictions placed by a government on the buying and selling of foreign currencies by residents, or on the purchase and sale of the local currency by non-residents. Since 1939, Singapore had imposed limits on how much of its currency could be moved outside its borders, taking its cue from exchange controls that had been introduced in the UK in that year. Singapore adopted the same laws as part of the sterling area, or Scheduled Territories, with all payments and capital remittances to countries outside the Scheduled Territories prohibited. These controls were regulated by the government under the Finance Regulations, which were replaced in 1953 by the Exchange Control Ordinance. This in turn was changed in 1970 to the Exchange Control Act, the administration of which was entrusted to MAS.

When the pound was floated in 1972, the UK redefined the Territories to cover only the UK, Channel Islands, the Isle of Man, Ireland and Gibraltar. Singapore now faced three choices: it could retain the status quo, completely relax exchange

controls, or impose exchange controls within Singapore alone. The second option was considered premature, while the third would conflict with Singapore's efforts to establish itself as a financial centre. Singapore thus decided to go with the first approach: retaining free payments and capital flows within the Scheduled Territories. It also planned to gradually free exchange controls on payments and capital flows to countries outside those territories as it developed into a regional and then international hub for financial services.

In line with this objective, a number of exchange control regulations were relaxed in 1973. In July that year, residents of countries outside the Scheduled Territories were permitted to invest in Singapore, and the restriction on movements of foreign currency securities was removed. Individuals and corporations were allowed, for the first time, to invest in specified currency securities and to place deposits in specified currencies in Asian Currency Units (ACU) subject to certain limits. MAS allowed investments by Singapore residents in specified currencies – including the US dollar, Japanese yen, German deutschmark and deposits with ACU – for up to S$100,000 for individuals and S$3 million for companies. The ceilings were raised in 1976 to S$250,000 for individuals and S$5 million for companies, and again in 1977 to S$500,000 for individuals. Also in July 1973, the restriction regarding Singapore residents' dealings in gold bullion was liberalised. Import licensing on gold was abolished in August 1973, allowing gold to be freely imported and exported by all residents.

The year 1976 also saw another major step in freeing exchange controls. Individuals and companies were permitted to invest in all currencies outside the Scheduled Territories and not just in specified ones. MAS also extended the definition of the Scheduled Territories to include the other ASEAN countries that were not already within the Scheduled Territories, a move meant to enhance integration within the region. Exchange control procedures were also standardised, minimised and simplified.

Finally, in June 1978, Singapore abolished all exchange controls completely. All Singapore residents and companies were now allowed to make payments in any currency, invest in any currency and country outside Singapore, and retain any amount of foreign currencies without restrictions. Crucially, this meant that individuals and companies could retain their export proceeds in foreign currencies and with overseas institutions for an indefinite period, rather than have to bring it back to Singapore within six months. Any foreign investments in Singapore and their repatriation from Singapore could also be made freely without having to go through any exchange control formalities.

The phased removal of exchange controls facilitated a freer flow of funds between Singapore and the rest of the world, and was timely given Singapore's rapid development as a financial centre, according to Mrs Sam. However, the decision was not without worries, as it would mean losing a measure of control over movements of the Singapore dollar and could potentially result in greater currency volatility. These concerns, fortunately, proved to be unfounded – a testament to the confidence that individuals and companies in Singapore had for MAS and the Singapore dollar. As Mrs Sam recounts: "So eventually we did lift exchange control and it was like a non-event. Nothing happened."

The 1985 speculative attack on the Singapore dollar

Perhaps the best way to prove the strength of a currency is to test it – which is exactly what speculators did to the Singapore dollar in September 1985. The economy was then in its first recession since independence, following a period in which the Singapore dollar had strengthened sharply after Dr Goh introduced the new monetary policy framework centred around the exchange rate in 1981. With real GDP contracting in 1985, foreign banks perceived the currency as being overvalued and bet that MAS would have to allow the Singapore dollar to weaken amid the economic downturn. As Dr Teh Kok Peng, a former MAS deputy managing director, recalls: "There was a lot of clamour from the industry to devalue it and the result was that there was a perception in the financial market that indeed [the] Singapore dollar was going to be devalued and this led to speculations against the Singapore dollar."

What the speculators did not count on, however, was the steely resolve of MAS and Dr Goh to stick to the long-held principle of keeping the Singapore dollar strong. A central tenet of MAS' management of the Singapore dollar has always been that the currency should not be devalued to gain short-term export competitiveness, as such a move would erode confidence in the currency in the long term.

Despite the downward pressure on the currency, Dr Goh took a hard line with the speculators, recalls Mr Pillay. This was an opportunity to send a message to international markets that Singapore would not resort to depreciating its currency as a quick fix for a recession, and Dr Goh made the most of it. "Dr Goh took the stance that we would fight it, irrespective of how much it was going to cost us in foreign treasure, because the alternative of a rapidly declining currency was too bad to contemplate," Mr Pillay says. "We didn't know where the Singapore dollar's fall would end and I think, more importantly also, that we might have to eventually defend the dollar by increasing interest rates to such a lofty level that the economy would be jeopardised … I can't recall how long the battle ensued, but it wasn't too long. I don't think it was a matter of more than two weeks."

Dr Goh "had already decided that we had to punish the speculators", recalls Mr Ng Kok Song, then the director of MAS' International Department and the current chief investment officer of the Government of Singapore Investment Corporation. "He discussed with me and basically asked me how much it would take to repel the speculation." Mr Ng's reply: "A few billion dollars of reserves, which at that time was a lot of money. I couldn't give him a small number because I didn't know what it would entail, but at the same time, I knew that if you were to be taken seriously in the marketplace, you must succeed." Dr Goh gave Mr Ng the green light to intervene in the currency market as well as to raise the short-term Singapore dollar interest rates to squeeze speculators out of their short positions. "We came in, and given that [the speculators] understood that we were determined, we didn't have to spend that much reserves," says Mr Ng. "The overwhelming force convinced people that they should not fool around."

Under Dr Goh's instructions, MAS intervened on Monday, 16 September, spending US$100 million – less than 1 per cent of its foreign reserves – to buy Singapore dollars, engineering an appreciation in the currency. The ensuing tight liquidity led to an immediate spike in the overnight interbank rate – or the wholesale price of money – which reached 105 per cent on 17 September and 120 per cent the following day.[9] Speculators short-selling the Singapore dollar in the hope that it would drop further were now forced to pay high penal rates on the interbank market to make good their short sales. Almost immediately, they dropped their attack. The Singapore dollar strengthened to S$2.20 against the US dollar in just four days, an appreciation of about 5 percent. News sources noted that substantial losses had almost certainly been incurred by foreign banks as a result of speculating against the Singapore dollar. Liquidity was gradually restored to the money market after the episode, but it was also made clear that MAS would not hesitate to act again if necessary.[10]

MAS' success in fending off the speculators can be attributed to a few key factors. First, its hefty foreign reserve holdings put it in a strong position to outlast speculators in buying up Singapore dollars and forcing the appreciation of the currency. Second, the policy of non-internationalisation of the Singapore dollar prevented speculators from accumulating the currency for attack purposes. Dr Hu expounds on these two points: "Well, I won't say that's the secret, but the mechanism of not allowing your currency to be attacked is, basically, do not allow it to be internationalised, in particular a country so small like Singapore … Also, if you have strong reserves, then you minimise the risk [of your currency being attacked by speculators] because even if you internationalise but your reserves are very large, somebody tries to sell them short, you just go and buy them."

A third factor was that the currency's underlying strength was backed by genuine economic fundamentals, and the downturn that Singapore was experiencing would prove to be a short-lived one, to be followed by a decade of strong growth. As Mr Ng puts it: "What really kept the speculation in check was the understanding that the fundamentals of the Singapore currency were strong … the weakness of the Singapore dollar was due to speculative activity." He adds that one lesson to be learnt from the episode is that "before you want to take on the market, be very sure that your fundamentals are on your side because the vast majority of market players will still go back to long-term fundamentals and therefore you don't have to battle them. You have to then deal with maybe the short-term speculators."

Finally, one last reason for the success of MAS' response to the 1985 speculative attack was nothing more than Dr Goh's own tenacious personality, reckons Mr Pillay. "I believe the speculators knew that they were not confronting somebody maybe like myself, raw in experience and uncertain, and maybe not with the same determination as Dr Goh to fight on. You needed some nerves of steel," he explains. "Dr Goh had a lot of experience, 25 years of experience in running monetary and

economic policy in Singapore, even though he was not continuously the minister for finance."

Mr Ng agrees: "When you want to act, you must act with overwhelming force," he says. "And when you have to intervene as a central bank, market participants must have the perception that you are intervening to win, that if they go against you, they will lose money. So that way, those who are inclined to take you on will have second thoughts. Others, seeing that you will win, will join you, and it will make your job easier."

Indeed, commentators believed Dr Goh's bold, hard-line stance – to force the exchange rate to appreciate in order to "punish" speculators – succeeded in establishing MAS' reputation as a tough and committed policymaker. This "demonstration effect" has clearly worked, says Mr Pillay, who adds: "I don't believe there has ever been a sustained attack on the dollar since then. Of course, you cannot imagine such an attack now because everybody knows that government has got a huge war chest."

Weathering the Asian financial crisis

The Singapore dollar came under a different kind of pressure during the Asian financial crisis of 1997 and 1998. In 1997, speculators began to attack the Thai baht, given Thailand's widening current account deficit, rise in external debt and over-exposure of the financial sector to a sagging property market. For over a year, the Thai government put up a strong defence of the baht, but was eventually forced to float the currency – which had previously been pegged to the US dollar – on 2 July 1997. Once freed, the baht fell immediately by over 15 per cent and by about 45 percent by the year-end.[11]

Contagion effects spread rapidly to other currencies in ASEAN, including the Singapore dollar. From starting 1997 on a strong note of S$1.40 against the US dollar, the Singapore dollar traded progressively lower to S$1.43 against the US dollar on the day before the float of the Thai baht. Over the year, the Singapore dollar fell by 16.5 per cent to S$1.68 against the US dollar and weakened by 6.7 per cent and 4 per cent against the yen and deutschemark respectively. At the height of the crisis in January 1998, the Singapore dollar weakened to a low of S$1.81 against the US dollar.

The other regional currencies' depreciation during the same period ranged from about 50 per cent for the Indonesian rupiah to 35 per cent for the Philippine peso. So while the Singapore dollar depreciated significantly against the major currencies of the US, Japan and Europe during the financial crisis, it appreciated against regional currencies. As a result, the exchange rate on a trade-weighted basis appreciated slightly between the middle and the end of 1997.

The unique resilience of the Singapore dollar in this period stemmed from strong macroeconomic fundamentals and a responsive monetary policy. It also benefited from MAS' resolute policy not to take the easy way out and let the currency depreciate as an immediate but temporary panacea for the financial and economic crisis. Instead, MAS opted to allow the trade-weighted Singapore dollar to fluctuate within a wider range to accommodate the extraordinary volatility as a result of the unusual level of uncertainty in currency markets. As the currency crisis wore on, MAS eased its policy stance. This helped to reinforce the other measures taken by the government – including lowering wages and other cost-cutting measures – and brought about a rebound faster than expected. With the focus firmly on keeping Singapore's economy competitive for the long run and not just the short term, the government also forged ahead with financial reforms and liberalisation policies.

Non-internationalisation of the Singapore dollar

One such reform involved the long-standing policy of not internationalising the Singapore dollar. Although exchange controls no longer existed in Singapore from 1978 onwards, MAS maintained an explicit policy of not encouraging the internationalisation of the local currency. Banks were required to consult MAS before extending Singapore dollar credit facilities exceeding S$5 million to non-residents for purposes other than economic activities in Singapore. Specifically, they were not allowed to extend Singapore dollar credit facilities to non-residents for speculation in the Singapore dollar currency. Restrictions were also placed on transactions with non-residents in Singapore dollar financial derivatives such as currency options and interest rate swaps and options, in order to discourage leveraging or hedging of Singapore dollar positions. This policy made it harder for potential speculators to short and weaken the Singapore dollar.[12] These restrictions were maintained for

various reasons. First, they made it harder for speculators to attack the Singapore dollar, as they could not borrow Singapore dollars to short the currency. Second, they prevented the development of an offshore market in Singapore dollars, away from MAS' oversight and influence. Third, the restrictions played an important deterrent effect, signalling MAS' determination not to tolerate speculation in the Singapore dollar.[13]

Hence, the fundamental reason not to fully internationalise the currency was that MAS uses the exchange rate as the principle tool of monetary policy, and it would be difficult to implement monetary policy if speculators were allowed to accumulate Singapore dollars overseas and use them to destabilise the exchange rate. With the abolishment of exchange controls, the task of managing the exchange rate was already made harder. As a small and open economy, Singapore is particularly vulnerable to wild swings in the exchange rate and would suffer especially from speculative attacks on the currency. Mr Lee Hsien Loong, then deputy prime minister and MAS chairman, explained in a speech in 2001 that MAS could not afford to assume that speculation in international financial markets was invariably self-stabilising, and that speculators who bet wrongly against the Singapore dollar would automatically be punished. "The policy of non-internationalisation of the Singapore dollar made it harder for would-be speculators to short the Singapore dollar, and signalled unambiguously our disapproval of such speculation," he explained. "This framework served us well. That we encountered very few speculative attacks in practice perhaps showed that the policy was effective." [14]

The non-internationalisation policy, supported by Singapore's strong macroeconomic fundamentals and substantial foreign reserves, helped MAS to maintain a stable Singapore dollar and avoid large swings in the exchange rate that would have damaged the economy. This in turn discouraged attacks on the currency, says Dr Hu. "Because you don't internationalise [the] currency, the amount of Singapore dollars held outside Singapore is not large enough to be used as ammunition to attack our exchange rate. So you got [the] Singapore dollar more or less circumscribed. [The policy was] to manage the Singapore dollar market, have banks well supervised, and build very strong reserves."

However, as Singapore sprinted towards establishing itself as a financial centre, it was felt that these prohibitions were becoming too restrictive. Bankers and fund managers complained that the limits on using Singapore dollars outside the country hindered Singapore's efforts to become a financial centre and impeded the development of capital markets in Singapore, especially the bond market. In some cases, the tight domestic restrictions fostered the growth of offshore markets in these restricted activities, undermining the purpose of not internationalising the Singapore dollar.

Complicating matters was the rapid pace of globalisation in the 1990s, which was revolutionising the financial landscape. As financial markets became more integrated and information and capital flowed more quickly and freely, financial institutions had to rethink the way they did business. There was a wave of mergers and acquisitions among these institutions, with consolidation seeming imminent for financial centres as well. Singapore was determined to hold its own and maintain its position as one of the key financial centres in Asia.[15]

Thus in 1997, MAS embarked on a fundamental rethink of its approach to the Singapore dollar as part of the work of the Financial Sector Review Group formed in August 1997. The aim of the review was to reassess the validity of the policy and see if there was any scope to fine-tune or relax the restrictions without jeopardising Singapore's monetary policy framework. A year later, the study was completed. MAS reaffirmed the need to keep the Singapore dollar from being internationalised, but found that the actual rules of the policy needed to be updated to accept larger capital flows and to encourage the development of the capital markets.[16]

Given the paramount importance that MAS had attached to the strength and stability of the Singapore dollar for almost three decades, Mr Lee recalls the non-internationalisation policy as being a "very sacred cow". It was widely whispered in the media that there were only two policies that business journalists could not call into question – one was the CPF system, the other was the non-internationalisation of the Singapore dollar. But Mr Lee explains that modification of such a central tenet was necessary to develop Singapore's financial markets. "If you want fund management to grow, if you want money to come into Singapore and people to invest in the stock market or even the property market, then you have to allow some free play on the exchange rate side for them to hedge their positions and to borrow Singapore dollars, not necessarily for trade or for direct investment purposes," he explains.

So began a slow and cautious journey to progressively allow wider use of the Singapore dollar. MAS took small but significant steps forward, at every stage weighing the trade-off between financial market development and the risk to exchange rate management. First, in 1998, MAS allowed foreign entities to list Singapore dollar-denominated shares and issue Singapore dollar bonds, and to swap the proceeds out of Singapore. It also permitted over-the-counter interest rate derivative products to be transacted freely, and allowed non-residents to engage in Singapore dollar repurchase transactions in Singapore Government Securities (SGS).[17] The new rules came under a new regulation, "MAS 757", issued in August 1998 to replace the outdated "MAS 621".

In 2000, MAS announced further changes to the policy. It allowed banks to lend Singapore dollars to non-residents for investment purposes in Singapore, and to non-residents to fund offshore activities, as long as the Singapore dollar proceeds were swapped into foreign currency. This meant that non-residents could now obtain Singapore dollar funding to invest in Singapore dollar equities, bonds and real estate, broadening the investor base for Singapore-dollar assets. In addition, banks were permitted to buy and sell Singapore dollar currency options with other banks and financial institutions in Singapore that were regulated by MAS. This move facilitated the use of currency options for hedging and offered a new growth opportunity for the treasury industry. At the same time, MAS allowed foreign securities intermediaries in Singapore to be deemed residents, allowing them to freely obtain Singapore-dollar funding to finance their capital market activities. Previously, as non-residents, these intermediaries had limited access to funding in Singapore dollars.

The new measures were aimed at paving the way for more international investors and securities intermediaries to participate in Singapore's financial markets, helping them to grow in size, liquidity and sophistication. With these changes, MAS eliminated virtually all obstacles to the growth of the capital markets in Singapore. It also further refined the objectives of the non-internationalisation policy: in the past, the goal had been to broadly limit foreign investors' participation in the Singapore dollar markets so as to minimise volatility in the exchange rate. Now, MAS was merely limiting the borrowing of Singapore dollars by non-residents for currency speculation and discouraging the development of an offshore Singapore dollar market.

The progressive relaxation of restrictions on the Singapore dollar, coupled with the encouragement of growth in Singapore's capital markets, quickly yielded results. Between 1998 and 2001, the outstanding volume of SGS doubled to S$54 billion and average daily turnover increased three times to S$1.9 billion. Companies issued significantly more new debts – both Singapore dollar-denominated and otherwise – although part of this was spurred by exceptional merger and acquisition activities, such as the consolidation of local banks. Total corporate bond issuance reached a record S$72 billion in 2001, almost eight times more than the corresponding amount in 1998. The diversity of corporate bonds also grew – with a wider variety of tenors seen – as did the average size of Singapore dollar-denominated bond issues. More sophisticated debt instruments became more prominent, with structured debt products accounting for about 35 per cent of the total Singapore dollar debt issuance.[18]

Having assessed that the outcome of the latest measures was largely favourable, MAS was ready to take a further step in 2002. Singapore's capital markets had grown in depth and maturity, and the central bank was gaining confidence and experience in managing larger Singapore dollar flows. To pave the way for an even wider range of activities in the foreign exchange, equity and debt capital markets, and to attract offshore Singapore dollar activities back onshore, it implemented new measures to take effect from 20 March 2002. A major move was to exempt all individuals and non-financial entities – including corporate treasury centres – from the restrictions on Singapore dollar lending. This reflected the recognition that such entities are not usually the main drivers of destabilising currency speculation. While non-resident financial entities continued to be governed by the limits of the non-internationalisation policy, certain curbs were also lifted. For instance, asset swaps, cross-currency swaps and cross-currency repos – which were previously treated as forms of Singapore dollar lending and subject to restrictions – could now be freely transacted. Financial institutions were also allowed to freely transact Singapore dollar foreign exchange options with non-resident entities without having to prove that these deals were for hedging purposes.

However, the two core requirements of the non-internationalisation policy were still retained and exist to the present day. First, financial institutions may not extend Singapore dollar credit facilities of more than S$5 million to non-resident

financial entities if they believe the money may be used to speculate against the Singapore dollar. This continues to be necessary to prevent offshore speculators from accessing the liquidity in Singapore's onshore foreign exchange swaps and money markets. Second, if a non-resident entity wants to obtain a Singapore dollar loan or tap Singapore's equity or bond markets to fund overseas operations, it must swap or convert the Singapore dollar proceeds into foreign currency before they can be used outside Singapore. This guideline is unlikely to stand in the way of market development, as the Singapore dollar is not a currency commonly used for transactions abroad, and non-resident entities would, in any case, generally prefer to swap or convert the Singapore dollar proceeds into a currency of their choice for overseas use.

"Over a period of two, three years we moved to a position where, in principle, you cannot speculate in the Singapore dollar. And in particular, we object if you borrow the Singapore dollar to short it. But in practice, we will not stand there and guard every transaction," says Mr Lee. The move was risky but had its payoffs. "At a time of heightened volatility in currency markets, it stood in stark contrast to our regional neighbours," he recalls. "However, the liberalisation has yielded dividends. Our capital markets have grown and deepened without adversely affecting our ability to manage the exchange rate. In practical terms, we have now gone as far as we can to relax the restrictions while still maintaining the principle of not internationalising the Singapore dollar. All but two restrictions have been lifted … These remaining commandments are important signals that we have not changed our fundamental stand against outright speculation on the Singapore dollar, even though we have permitted nearly all activities of legitimate investors."[19] Part of the success of the liberalisation of the non-internationalisation policy has to be attributed to the credible reputation MAS has acquired over the decades, says Mr Tharman Shanmugaratnam, deputy prime minister and current MAS chairman. "The fact that people understand and believe that MAS will stick to its stated policies on the exchange rate has only come about because of its track record. But it also has come about because we liberalised the markets themselves and allowed them to become deeper markets with a greater range of participants."

Still, the debate over the internationalisation of the Singapore dollar has not ended. There are those who question whether MAS waited too long before moving to liberalise the policy, and whether it proceeded too gradually in doing so, thus missing out on opportunities to create niche financial industries that eventually found roots in financial centres such as Hong Kong. Some academics and observers also continue to argue that the non-internationalisation policy has outlived its usefulness. They say the policy has not actually been proven to have discouraged speculative attacks; indeed, progressive lifting of restrictions on the non-internationalisation of the currency in recent years have not prompted more speculation.[20] The rule that non-resident companies must convert their Singapore dollar proceeds from loans into foreign currencies before using them abroad has also been criticised as being redundant, as corporate risk management strategies already require firms to swap loans denominated in foreign currencies – in this case the Singapore dollar – into their domestic currency. Some also propose that allowing the Singapore dollar to be internationalised would help to develop Singapore's still relatively underdeveloped bond market.[21]

Currency House at Pasir Panjang Road.

Former first lady, Puan Noor Aishah (extreme right), at the launch of the current series of currency notes featuring the portrait of Singapore's first president Mr Yusof Ishak, at the Portrait Notes & Currency 21 Exhibition in September 1999

However, MAS believes it is wise to continue with the two core requirements of the non-internationalisation policy so as to maintain a basic stance of not encouraging internationalisation of the Singapore dollar. This sends a strong signal that MAS will not tolerate speculation in the Singapore dollar, staving off would-be opportunists. They also provide Singapore with basic safeguards in the event that activity in currency markets turns out to be destabilising.

Conclusion

Both the gradual liberalisation of the Singapore dollar and the preservation of the two core requirements have helped MAS maintain a strong currency as one of the key pillars of macroeconomic policy. Removing restrictions has built greater depth and liquidity in the financial markets, which have become more resilient and better able to handle short-term movements and larger capital flows. Of course, Singapore's well-known strong fundamentals have also played a part in fostering confidence in the currency, and the government's tight fiscal discipline, healthy balance of payments,

strong foreign reserves, prudent policies and sound financial system have all underpinned the strengthening of the Singapore dollar. During recessions, monetary policy is eased and the Singapore dollar is allowed to depreciate, but the bulk of the heavy lifting is borne by fiscal measures. This avoids a significant or continuing depreciation of the Singapore dollar, which may enhance export competitiveness in the short term but will eventually undermine the objectives of low inflation and a credible currency in the long run.

The Singapore dollar is no less important today to the success of Singapore's financial sector or its economy. And the debilitating effects of an attack on the currency are also no less real. It is reassuring that MAS remains vigilant about the possibility of attacks on the currency or the impact of global economic dislocations that can cause destabilising movements.

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Four

RESERVE MANAGEMENT

The ability of any country to maintain stability and confidence in its currency rests to a large extent on the size of its official foreign reserves. These reserves are liquid assets, predominantly denominated in foreign currencies. They are held by a central bank to support its intervention operations in the currency markets, to meet any external financing or balance of payment needs of the country, and to back the local currency being issued. For Singapore, which uses a managed exchange rate float as its principal monetary policy instrument, the need for sizeable and well-managed foreign reserves takes on an even more critical aspect. Apart from their role in implementing monetary policy changes, strong reserve holdings also instil confidence in the domestic currency and serve as a deterrent against speculative attack.

This crucial function of preserving and growing the value of Singapore's foreign reserves has been entrusted to MAS. This is no small task, as Mr Lim Hng Kiang, MAS deputy chairman and Singapore's trade and industry minister, sums up: "We have decided that for a very small open economy like ours, we need sizeable reserves. At the same time, we don't want just to park this in very liquid forms. You also want to have some decent returns. We don't want to have heroics but at the same time, you are not just sticking to currencies and bonds. So that puts a bit of

responsibility on the reserve management part, which is in addition to the typical responsibilities of a central bank."

As a country that exports significantly more than it imports, Singapore accumulates considerable balance of payment surpluses. Local exporters earn revenue in foreign currency that they exchange for Singapore dollars with the banks, which in turn exchange the foreign currency with MAS. Foreign investors also demand Singapore dollars for their investments, which can lead to undue appreciation of the Singapore dollar. In addition, Singapore has a high savings rate: households and companies are obliged to contribute to the Central Provident Fund (CPF) mandatory savings programmes, while the government has run budget surpluses for decades. This drains liquidity out of the system and puts persistent pressure on the Singapore dollar to appreciate. MAS typically intervenes to temper this appreciation by selling Singapore dollars in the market and buying up foreign currencies, especially the US dollar.

These processes have led to a prodigious growth in Singapore's foreign reserves over time, a trend that is likely to continue in the foreseeable future. Today the sum of external assets under MAS' purview runs into the billions: total official foreign reserves stood at about US$250 billion as at August 2011. In addition to using the reserves to perform its central banking functions of maintaining liquidity in the system, protecting the Singapore dollar and implementing monetary policy, MAS actively invests them in a variety of asset classes with a view to achieving good long-term returns and enhancing the purchasing power of the reserves. This approach is commonplace today, with governments around the world setting up sovereign wealth funds to invest their spare reserves, but MAS was one of the pioneers in this area. As early as the 1970s, it deviated from traditional "safe" central bank investments such as gold, bonds and cash to diversify into equities and other asset classes. Over the years, as financial markets evolved, MAS has also expanded the range of instruments within asset classes in which it invests.

The early years

After Singapore split with Malaysia in 1965, the two countries decided to set up separate currencies. Singapore's Ministry of Finance took control of the central banking functions that had come under Bank Negara in Singapore and also regained its share of the reserves, says Mrs Elizabeth Sam, the former chief manager of MAS' Department of Investments and Exchange Control. These reserves were managed by the Department of Overseas Investments within the Ministry of Finance until MAS took over after its establishment in 1971.

From the outset, the management of Singapore's reserves was governed by the principles of pragmatism, innovation and foresight. This was due in no small part to former MAS chairman Dr Goh Keng Swee, who was particularly interested in the management of foreign reserves. While under the watch of the Finance Ministry, the foreign reserve portfolio was largely invested in cash deposits and fixed interest securities denominated in sterling, US dollars and in gold – conventional liquid assets typically held by central banks. But Dr Goh, who was then concurrently Singapore's finance minister, also directed that a small portion of the portfolio be held in equities, introducing the idea of holding reserves for wealth preservation purposes several decades before sovereign wealth funds became commonplace.

Dr Goh also appointed Mr Lim Chee Poh, a veteran stockbroker, to oversee the department, taking over from the original custodian, Accountant-General Chua Kim Yeow. Mr Lim was succeeded by Mr Francis D'Costa and later Mrs Sam.

The setting up of MAS brought Singapore's reserve management function under the same roof as other monetary duties including bank licensing and regulation, finance company supervision, and exchange control oversight. The Board of Commissioners of Currency, Singapore (BCCS), whose main duty was to issue currency, held a small portion of foreign reserves as well.

Within MAS, the reserves were managed by the Department of Investments and Exchange Control, overseen by Mrs Sam, who had transferred to MAS when the reserves were moved there from the Ministry of Finance. Later, the department was renamed the International Department. Reserve management was dealt with at the highest levels of management at MAS, which met every Monday morning to make decisions about what the reserves should be invested in, recalls Mrs Sam.

The key impetus for the zealous oversight of reserve management was that the reserves were starting to grow substantially. In the year to March 1972, MAS' first financial year, total gold and foreign exchange holdings reached S$765.2 million – more than three times that in the previous year. By 31 March the following year, total

gold and foreign exchange holdings had almost doubled again to S$1.43 billion. "Even in the 1970s, we were already experiencing chronic capital inflows. Every week or so when we prepared the numbers on our foreign reserves, they were steadily increasing because more and more funds were being transferred into the reserves," recalls Mr Ng Kok Song, who was then the investment analyst in charge of reserve management under Mrs Sam.

The rapid rise in reserves in the first few years of MAS' establishment cemented the view that MAS had enough provision for liquidity and should put the excess reserves into trying to get a better rate of return. Thus at a time when most other central banks were still concerned simply with liquidity management, MAS distinguished itself by taking a longer-term view on returns. Dr Goh's hand was clearly visible in this: he believed that the policies of the industrial countries were biased towards inflation rather than deflation. In his view, investing reserves in equities was a better way of preserving value and getting capital appreciation than for example, keeping the reserves in fixed interest instruments, recalls Mrs Sam. "It was certainly very unusual," she says, describing the uniqueness of this view. "I think until maybe even the late eighties, central banks generally did not invest in equities."

With these objectives in mind, MAS began to adopt a more active management approach to the portfolio, as opposed to passively managing its value over time. After the break-up of the sterling area in 1973 and the devaluation of the pound sterling, MAS reduced its holdings of sterling and diversified into other foreign currencies. Mr Michael Wong , the first managing director of MAS, recollects that "we ran down our holdings of sterling, which used to be about 70 or 80 per cent of our investments, down to about … maybe even as low as 10 per cent".

With that, MAS became among the first central banks to move from the pound sterling and the US dollar into Japanese yen, German deutschemarks and Swiss francs, remembers Mrs Sam. These currencies were chosen for a few key reasons: their ready convertibility into other currencies, their high liquidity due to the large size of the market for each currency, and their country's potential for economic growth, which would boost the value of the currency. "What you didn't want to do obviously was to get into some exotic currency where maybe there is a good chance of appreciation but liquidity could be affected by government measures," says Mrs Sam.

Even real estate investments were taken into consideration. MAS bought Granite House in London, again breaking new ground as one of the first few central banks to enter into property investments. But the purchase was not without its problems: after MAS bought the property in 1973, the property market collapsed and the value of Granite House fell to about half the price that MAS had paid. Today MAS does not invest in real estate, as the official foreign reserves of a central bank are for meeting a country's external financing needs in the event of loss of confidence in the domestic currency, and should be invested in easily liquidated assets.

MAS was also a trailblazer in tapping on and learning from the expertise of external fund managers as early as the 1970s. Small portfolios were sent out to be managed by private investment houses, and MAS staff were also sent there for training. MAS' US dollar investments in equities were handled by two American firms: Lehman Brothers and Lazard Freres, while a British stockbroking firm, James Capel, was entrusted with a portfolio spanning British and American equities and South African gold shares, says Mr Ng.

As MAS began investing more in overseas markets, it felt it was timely to set up an overseas office in London to monitor its investments in equities, bonds, and even South African gold shares, most of which were listed in the UK. Mr D'Costa was sent to start up the office at the end of 1972, and Mr Ng followed in June 1973 to be his assistant manager and eventually his successor.

Many of these principles that were put in place as early as the 1970s were to become cornerstones for MAS' reserve management in later years through to today. They included analysing a country's macroeconomic fundamentals and market liquidity before investing in its assets, farming out small portfolios of reserves to be managed by external fund houses in order to diversify investments, and a profit-orientation and interest in long-term returns that was unusual among central banks at the time. Mrs Sam sums it up by saying: "The concept of being profit orientated probably was a Singapore syndrome. One tended to look at something as to whether it made economic sense and whether there was a bottom line to it or not."

Establishment of GIC

It was not long before some of these new approaches to reserve management evolved and crystallised in a more radical change in policy. When Dr Goh was appointed MAS chairman in 1980, he conducted a thorough review of the organisation's role and functions, and one result was an overhaul of the way Singapore should manage its reserves.

Dr Goh's thesis was that Singapore's reserves should not be managed in the traditional manner of a typical central bank. He felt that Singapore would have chronic surpluses because of its prudent fiscal policy and high savings rate of the country. These surpluses would result in accumulation of reserves in excess of what was needed for managing the exchange rate. Hence, there should be two pools of reserves – one to be managed by MAS, the other to be managed by a new investment management organisation with a long-term orientation. The former needed to concentrate on holdings of liquid assets with short maturities to allow MAS to respond quickly to market conditions and switch large amounts between currencies, especially in an environment of increasingly volatile interest and exchange rates. The latter, however, could focus more on investments that would yield good long-term returns, such as equities.

To make the distinction between these two objectives clearer, Dr Goh kept the management of short-term assets under MAS' control, allowing it to manage the exchange rate with a prudent buffer. But excess reserves, including those managed by the BCCS, were transferred to a newly established organisation – a specialised investment body dedicated to the professional management of Singapore's foreign assets. The Government of Singapore Investment Corporation (GIC) was incorporated on 22 May 1981, with an authorised capital of S$2 million and a number of leading international investment experts as fund managers and consultants.

In a widely-read statement to announce the setting up of GIC, Dr Goh explained the rationale of this move. "The MAS and BCCS, faced with regular surpluses in the financial accounts in the public sector, resulting in regular overall balance of payment surpluses, followed policies more appropriate to economies in chronic deficit," he said. "The surpluses have been allowed to accumulate to amounts in excess of what is required to meet the legal obligations of the Currency Board or the resources needed by the MAS to manage the floating parity of the Singapore dollar. The MAS

Then Senior Minister Lee Kuan Yew unveiling a plaque to commemorate the opening of GIC's new office at Capital Tower on 21 May 2001.

and BCCS thus came to hold a large portfolio of investments diversified in terms of type and maturity of assets and the currencies in which they are held. Insufficient weight was given to the management of assets held as long-term investments."[1]

Hiving off the long-term assets to GIC was a major milestone in MAS' history and a trailblazing move globally. Such "sovereign wealth funds" – today's term was not coined until much later – had up to then been the province only of commodity-rich economies, and none had been set up with a specific purpose to professionally invest surplus reserves in a diversified way. Temasek Holdings was by then already established, but its task at the time was more domestically focused: it was meant to stimulate investments in areas strategic to the Singapore economy, while GIC would concentrate its energies solely on the aim of maximising returns on Singapore's external assets. As Mr J Y Pillay, a former deputy chairman and managing director of MAS, recalls: "The formation of GIC was actually quite a novel idea, groundbreaking because no other government that we knew of had set up such a specific agency to manage the surplus assets on a diversified portfolio basis."

With the primary aim of seeking long-term capital appreciation for Singapore's reserves, one of GIC's first tasks was to build up a substantial equity portfolio with

stocks in the US, Europe and Australia, as well as real estate, commodities, and, later, private equity assets. Today, GIC manages over US$100 billion in assets.

External fund management and the tranching of reserves

Even after setting aside part of its reserves to be managed by GIC, MAS' foreign reserves continued to increase steadily in size. This growth came to the attention of Mr Lee Hsien Loong, who became chairman of MAS in 1998 and proceeded to embark on a comprehensive review of the portfolio. One of the key initiatives of the review centred around an innovative idea of allocating a portion of reserves to be managed by external fund managers, with a view to anchoring them in Singapore in order to develop the domestic fund management industry. This approach also served a number of additional purposes: it would allow MAS to diversify into new markets or asset classes in which it had limited expertise, and bring in the best-of-breed in terms of specific asset classes. MAS would further be able to widen its asset management expertise and foster a bigger variety of investment views and approaches – key to nurturing the blossoming asset management industry in Singapore.

In 1998, MAS announced that it would give out S$10 billion of funds to be managed by private sector fund managers over three years. These would be placed with "qualifying fund managers of good, proven track record and who show commitment to developing the Singapore asset management industry".[2] This "commitment" would be measured "by the amount of additional funds they bring to manage here as well as their plans to build up their locally-based fund management expertise". MAS' funds were meant to act as seed money to encourage existing fund management companies to continue to grow in their operations as well as to attract other fund management companies to set up offices in Singapore.

Under the external fund management programme that still exists today, portfolio managers are shortlisted and carefully selected for different parcels of the funds. Apart from their ability to meet performance expectations, fund managers are also selected based on their commitment to help develop Singapore's financial industry. Following the initial S$10 billion that MAS parcelled out in 1998, the amount of funds placed out has grown significantly, in line with the rate of growth of Singapore's foreign reserves.

When it embarked on the external fund management initiatives, MAS employed simple guidelines to decide how much of the reserves should be placed out, says Dr Teh Kok Peng, former president of GIC Special Investments and former deputy managing director of MAS. "We were using the conventional rules of thumb: how many months of imports, retained imports we can cover in case [of] a scenario where suddenly the world goes into a bad shape, or suddenly we can't export anything. How many months of import cover will we have in an emergency?" In the years that followed, MAS developed those first principles into a more sophisticated framework that accounted for capital flows and liquidity, among other things.

Risk management

With the expansion of the mandate and objectives in allocating the foreign reserves, and given the greater complexities inherent in a more inter-connected global financial system, greater focus on risk management became an imperative.

A Risk Committee comprising MAS Board members and senior management was set up in 2000 to assist the Board of Directors in discharging its risk management responsibilities. The committee is chaired by an independent Board member, as a strong and visible commitment at the senior management level to foster a sound risk-controlled environment in MAS. This committee provides oversight and guidance on the management of risks faced by MAS. In the area of reserve management, the committee also oversees the implementation of a framework of best practice standards for managing a range of risks including market, credit, liquidity, and operational risks.

The Risk Committee is supported by a dedicated risk management function in MAS that is independent of reserve management. This function was established in 1999, as it became apparent that with MAS' increasingly diversified investment portfolios, there was a need for investment risk to be managed more comprehensively and holistically. The risk management team analyses and provides insights on the risks to which MAS' portfolio is exposed. It also formulates risk policies and controls, and performs independent compliance monitoring of the portfolios in accordance with stipulated investment guidelines. The risk management function also works closely with the reserve management function to determine the strategic

asset allocation of MAS' investment portfolios, to ensure that the riskiness of MAS' investments are given as much consideration as the potential returns.

MAS' markets and investment group today

MAS' reserve management-related functions are performed by two different Departments. The first is the Monetary and Domestic Markets Management Department (MDD), which deploys the reserves for implementing monetary policy and keeping the value of the Singapore dollar stable. The second is the Reserve Management Department (RMD), which is primarily responsible for the investment of MAS' official foreign reserves, including the deployment of reserves in major bond and currency markets globally as well as managing the reserves that are outsourced to external fund managers, such as GIC. RMD's portfolio managers are mainly based in Singapore but the department has small offices in New York and London, which oversee investments in the US and Europe respectively.

Over the years, the primary objectives of MAS' reserve management have stayed largely consistent: to support monetary policy, to ensure confidence in the Singapore dollar, and to achieve a good long-term rate of return. The first is the task of MDD, which implements Singapore's monetary policy. MDD transacts with banks to adjust the value of the Singapore dollar in order to tweak the value of the Singapore dollar exchange rate within the policy band if necessary.

The second objective of reserve management, to preserve the value and purchasing power of the reserves through judicious long-term investments, falls to RMD. The department drives the investment process that allocates the reserves to broad, liquid, and investable asset classes globally. RMD also manages the investment of reserves in the major global bond and currency markets and the outsourcing of a portion of funds to a carefully selected portfolio of fund managers in a variety of mandates across the asset class spectrum.

Many of the precepts that have driven the investment of MAS' reserves at the outset continue to be at the heart of RMD's investment process today. The investment philosophy is based on pragmatism and innovation, rigorous analyses of global macroeconomic fundamentals and market conditions, and a deep appreciation of the balance between risk and reward in achieving long-term returns.

Conclusion

The burning question in reserve management that has underlined this whole chapter has been the optimal allocation of funds between two objectives: the need to perform day-to-day central banking functions and the desire for a better rate of return in the long term. This issue has grown thornier in recent years as financial systems become more integrated and globalised, causing capital flows across borders to grow in size and frequency. Asia, in particular, with its attractive growth prospects, is attracting bigger flows of capital that can be destabilising, which means central banks such as MAS may need to keep more reserves at hand to maintain the stability of its currency.

There is also the difficulty of keeping reserves growing as the economy matures and current account surpluses diminish. MAS does not set targets for growing its in-house reserves, but they have enjoyed a historically high expansion rate because Singapore has outpaced the rest of the world in economic and exports growth. This trend may change over the next decades, as economic growth slows and an aging population in Singapore contributes to lower savings and therefore a slower accumulation of foreign reserves.

Ultimately, however, what matters are still the basic objectives of reserve management which have been constant since the inception of MAS: to ensure sufficient reserves are in liquid and secure instruments ready for deployment in the implementation of monetary policy, and to preserve the value and purchasing power of the remaining reserves by achieving good long-term returns. With the discipline and foresight of MAS' reserve management processes, Singapore's official foreign reserves are in good hands.

ENDNOTES

1 "Kim San MAS Managing Director, PM to head top Government company." *The Straits Times*. 28 February 1981.

2 "MAS to Place Out S$10 Billion to Private Sector Fund Managers as Part of Drive to Develop Singapore's Financial Sector." MAS Press Release. 13 November, 1998.

Five

REGULATION & SUPERVISION

The effectiveness of MAS as a financial regulator lies in two principles that might appear contradictory at first glance. The first is consistency: MAS' actions are predictable and consistent across a variety of situations and institutions, which lends it credibility with global financial institutions and their own home regulators. The other is flexibility: even as it demonstrates steadfastness, MAS must be adaptable enough to allow useful innovation to flourish within the sector, and be quick to adjust its policies to changing global trends.

Throughout its 40-year history, MAS has kept these two axioms firmly at the heart of its approach to financial supervision. It is perhaps one of the most consistent financial regulators in the world, maintaining high standards in the domestic industry by adopting selective admission criteria, stringent prudential requirements and rigorous enforcement. But it has also been responsive enough with its policies to allow the development of the financial sector, actively bringing in new players and nurturing new activities and businesses. The result: a vibrant financial sector that now plays host to more than 300 banks and insurers. Complementing them are more than 300 other financial institutions providing capital markets services and financial advisory services, and involved in a range of activities, from futures trading to fund management.

Despite the presence of so many players engaging in trading activities valued at several times the country's gross domestic product (GDP), Singapore's financial sector has not suffered any major systemic failure. Runs on banks and finance companies have been few and far between, each one an isolated incident that did not pose a serious threat to the stability of the system. Financial scandals like the Pan-Electric crisis and the collapse of Barings hogged headlines when they first broke out, but were all effectively dealt with through a combination of regulatory, supervisory and legal actions.

The evolution of MAS' thinking on financial supervision can be divided into three distinct but inter-connected phases. Each was in its own way appropriate not just for its specific time in history, but also as part of the overall development of Singapore as an international financial hub.

The formative years (The 1970s)

With a long history as a trading hub in Southeast Asia dating back to 1819, Singapore is no stranger to commercial activity and the banks and financial institutions that supported it. In fact, by the time MAS was formed in 1971, the island republic was already quickly developing into a regional financial centre. There were several clear advantages Singapore had in Asia. Chief among these was its favourable location, in a time zone that would enable traders to have contact with Tokyo, Hong Kong, Sydney, London and other financial centres on the same day. This allowed them to cover their positions in Asia in line with opening quotes in London.[1] Foreign banks were setting up offices here and, from 1968, were being given licences by the Ministry of Finance to tap a newly-created Asian Dollar Market (ADM). Modelled after the euro-dollar market, the ADM allowed foreign banks here to invest and trade US dollars and other foreign currencies that they did not repatriate back to their home countries or convert to Singapore dollars. This market has since developed into one of the largest foreign exchange trading hubs in the world, with the ADM serving as a key node in the international funding activities of both banks and non-banks.

But at the time of its establishment, as the financial regulator of a newly independent nation, MAS also needed to safeguard the soundness and resilience of the financial system that was the life-blood not just of ordinary Singaporeans but also of the international trade and business being conducted in Singapore. As MAS gradually admitted more foreign players, it had to create an effective supervision system to oversee the rapid development of the financial sector.

To do all this, MAS had to ascend a steep learning curve quickly and effectively – that was the most immediate task at the time. Because the market was immature, MAS and its management had to build up the necessary infrastructure from scratch. To accomplish this, it decided to leverage on the knowledge and experience of the local and international bankers already in Singapore. Led by its first managing director and veteran banker Mr Michael Wong, MAS called for frequent meetings with the industry. Mrs Elizabeth Sam, former chief manager of the International Department and one of the key officers involved in the setting up of MAS, recalls that having a banker as the managing director was useful because at least Mr Wong understood the fundamental issues and problems faced by banks. It also helped that even in its nascent stage, MAS had assistance from other countries. "I think we did inherit some semblance of a banking department from Bank Negara. And we did send a lot of officers for training overseas," says Mrs Sam.

It was in dealing with these key challenges that MAS developed the central tenets of its financial supervision policy which endure to this day. This comprises two essential activities: a "gatekeeping" role that involves the *ex ante* screening and licensing of banks and financial institutions that want to operate in Singapore, supplemented by ongoing supervision and regular examination and monitoring of their activities *ex post*.

In its capacity as gatekeeper, MAS processed all applications for licences to set up banks, finance companies, merchant banks and insurers. With the exception of finance companies which were all local, the licences were granted only to large and reputable institutions. Minimum solvency and liquidity requirements were stipulated, but emphasis was also placed upon each institution's ability to participate actively and contribute to the development of the various financial markets.[2]

Although MAS would go on to approve the entry of many foreign banks in Singapore to conduct both domestic and international business, it has steadfastly refused others that do not meet its criteria. History has proven those rejections to be right. Starting in the 1970s, MAS consistently refused to grant a banking licence to the Bank of Credit and Commerce International (BCCI), an international bank

founded in 1972 by Mr Agha Hasan Abedi, a Pakistani financier, and registered in Luxembourg (*see case study on pp 105–107*). As a result, Singapore was spared the fallout from the bank's collapse in 1991. MAS also denied a licence to the National Bank of Brunei, substantially owned by the late Singapore businessman Mr Khoo Teck Puat. It turned down an application in 1975 and again in 1983 when the bank reapplied. In 1986, the National Bank of Brunei was closed down by the Brunei authorities.

For the other important leg of financial supervision – the examination and monitoring of banks' activities – MAS conducted bank inspections and provided advice on how to interpret its official notices. MAS inspected, under conditions of strict confidentiality, everything from a bank's books, accounts and transactions to its management practices and policies. In line with the overall goal of maintaining the financial system's stability, particular emphasis was placed on financial soundness and solvency, the quality of assets and management, the robustness of controls and the funding of long-term commitments. Any deviations from risk management expectations and statutory provisions were immediately brought to the attention of the institution concerned and rectified through further consultations with MAS. In cases where there was a serious weakness or violation, the bank was penalised. MAS' primary focus was still the local banks, former banking department manager Tang Wee Lip recalls. "We cannot allow or we do not want to see a local bank having a run problem," he says. "So we said that you must know your daily cashflow etc. If you don't know what is your liquidity position, something is wrong."

Aside from inspections, MAS gave guidance to banks on the interpretation of the bank notices it issued, and on the classification of items for the purpose of compliance with provisions of the Banking Act. MAS also monitored banks and finance companies on management quality and internal controls and, for prudential reasons, the direction and quality of bank lending. It even had a say in the way banking staff in Singapore were trained, conducting surveys and monitoring the progress of staff training programmes instituted by banks and finance companies.

The relationship between MAS and the banking sector was therefore a close one characterised by frequent interactions. Although the regulatory environment was strict, MAS also had to be friendly as Singapore still aimed to attract internationally reputable institutions from around the world as part of its efforts to develop the

BANK OF CREDIT AND COMMERCE INTERNATIONAL (BCCI)

The story of BCCI is still one of the most talked-about in the corridors of MAS' banking supervision departments. However young they may be, MAS officers know to reach for this example when asked about the regulator's key successes. BCCI was the seventh largest private banking group in the world at one time, and reputed to have assets of US$20 billion. For almost two decades, it knocked repeatedly on the doors of MAS, seeking a banking licence to operate in Singapore. Prominent international figures lobbied Singapore's leaders for the cause. But MAS never yielded, so Singapore escaped the fallout when the bank collapsed in 1991.

BCCI was incorporated in Luxembourg in 1972 by Mr Agha Hasan Abedi, a Pakistani national who was previously the president of United Bank, Pakistan's largest private bank. The lender had a presence in 69 countries, including most of the world's major financial centres. Boasting shareholders that included the Bank of America and members of the royal families of Saudi Arabia, Bahrain, Abu Dhabi and Dubai, BCCI first made an application to MAS for an offshore banking licence in 1973, barely a year after it was established. Its application was rejected on the grounds that it was new and had no track record. BCCI did not take no for an answer.

Despite Bank of America's lack of confidence in BCCI, in selling its 30 per cent stake, and information received about the bank from Bank of England's James Keogh, it persisted in seeking approval to establish operations here. BCCI sent its senior officers and lobbyists almost every year to bring up its case with MAS. One of its lobbyists was Mr J D van Oenen, who was head of the Bank of America's branch in Singapore in the early 1970s and a director of BCCI. Mr Van Oenen had been credited with helping Singapore start its all-important Asian Currency Unit (ACU) foreign currency business.

After repeated soundings, BCCI formally re-applied for a licence in 1980. But again, MAS did not give the green light. This time, MAS based its decision on BCCI's reputation, saying it found the bank's international standing to be poor. In late 1982, BCCI redoubled its efforts, formally applying again to MAS and

sending Mr Van Oenen to meet MAS chairman and Singapore's deputy prime minister, Dr Goh Keng Swee, as well as Finance Minister Hon Sui Sen. MAS again re-assessed BCCI's application in light of Mr Van Oenen's representations. It spent six months investigating what the group had been doing since its last rejection and discussing the merits of its fresh application. In the end, MAS was still uncomfortable with BCCI and had substantial doubts over whether BCCI could be effectively supervised.

Underpinning MAS' reluctance was the negative feedback it had received about BCCI from international banks and central bank officials from jurisdictions in which BCCI had been allowed to operate. For example, MAS found that BCCI hired separate auditing firms in each jurisdiction, a practice that continued into the late 1980s. At one point, BCCI's accounting firm Price Waterhouse would only sign off on the accounts if it could audit the entire group. The bank lacked a lead regulator to supervise its global operations. MAS had also been given warnings about the bank from the central banking fraternity. Taking all these factors into consideration, MAS again turned down BCCI's application.

But BCCI refused to give up, making one more try for a licence in 1985. This time, former British prime minister Harold Wilson contacted Singapore's then-Prime Minister Lee Kuan Yew and brought up the issue of BCCI's failure to clear MAS' hurdles. But there was something strange about his letter, Mr Lee wrote in his memoirs.[3] "His practice had been to sign off in his own hand, 'Yours sincerely Harold'," he recalled. "This time the 'Yours sincerely' was typewritten and he signed himself '(Harold) Wilson of Rievaulx'. I decided he was writing pro forma, to oblige a friend." Going with his hunch, Mr Lee supported MAS' reasons for the rejection and gave Mr Wilson the same negative answer that had been consistently given to BCCI. Finally, a senior director from the bank sought to meet the new MAS managing director, Mr Lee Ek Tieng, in late 1989 – just before BCCI's collapse in 1991. His request for an appointment was declined.

"(BCCI) stood out most clearly because they were so persistent and they failed," recalls Mrs Elizabeth Sam. "I remember (Mr Van Oenen) did come to try and plead a case for BCCI, and clearly it was thought that his intervention might be helpful, having done Singapore this great favour of introducing the ACU to Singapore. But despite all that, of course, it was felt, reputation-wise, there were some question marks." Former Finance Minister Richard Hu says that in the end, it was about assessing the case objectively and holding fast to the reasons for accepting or rejecting an institution's application. "In the process of issuing licences for foreign banks, we also ascertained that they were adequately supervised by the home regulator," he explains. "One of the reasons why BCCI never got the licence was the absence of consolidated supervision over its operations. They did not have an ultimate home regulator."

MAS' instincts were proven right when BCCI was indicted in the US in 1998 for laundering drug money. In 1991, the Bank of England's discovery of fraud on a multi-billion-dollar scale at the bank triggered a worldwide move to seize its assets. Not long after, BCCI collapsed amid a maelstrom of international headlines. Looking through the ruins later, investigators in the US and the UK subsequently revealed that BCCI had been set up deliberately to avoid any centralised regulatory review and operated extensively in jurisdictions where banking secrecy provisions were strong. There were numerous corporate governance failings as well. Apparently, the bank had loaned as much as US$1.48 billion to its own shareholders, who used the bank's shares as collateral. Had BCCI been allowed to operate in Singapore, even as only an offshore branch, many non-bank customers, particularly individuals, might have placed foreign currency deposits with it and suffered when the bank went under.

The enduring lesson from the BCCI episode was that MAS prevented a crisis in Singapore by refusing to allow itself to be dazzled or intimidated by well-known names or high-powered connections. Disregarding majority opinion, MAS stuck to its principles of ensuring that any institution admitted to Singapore must have high prudential standards, a strong international reputation, and management with integrity. But BCCI was not the only prominent bank that found itself unable to get past MAS' vigilance. Other financial institutions, such as the National Bank of Brunei, also tried and failed to use their connections to access the Singapore market.

Mr Koh Beng Seng, former deputy managing director of MAS' banking and financial institutions group, recalls one unnamed individual who met with then-MAS managing director Yong Pung How and asked for approval to operate a bank in Singapore. "He bragged about the half a dozen private jets he owned," he says. "Yong Pung How told him: 'Yes, you're welcome to park all your private jets here, but if your bank does not meet our criteria, you cannot park your bank in Singapore.' Very straightforward."

financial sector. When banks and finance companies held their monthly dinners and lunches, MAS officials would attend. This gave bankers and financiers the opportunity to provide feedback to MAS on a more informal basis.

Mr Tang recalls that he would try to attend most of the lunches or dinners when he was not travelling outside Singapore for work. "There were no speeches, but we were there for them to approach us in case they wanted to say or ask something in a more informal setting," he says. Mrs Sam adds: "I think one always had in mind that what they told you was not always necessarily in Singapore's interest but in their own interest. But out of this distilling and discussion, we made decisions based on what we thought would be best for Singapore."

As a result of this close collaboration, joint committees were formed to look into improvements that could be made to financial sector infrastructure. MAS also used the interaction to keep in touch with the evolving needs of a fast-growing financial industry. In 1974, the minister for finance, Mr Hon Sui Sen, pushed for the set up of two training and educational bodies to support Singapore's development as a financial centre. These were the Institute of Banking and Finance (IBF) and the Singapore Insurance Training Centre (SITC), the forerunner of the Singapore College of Insurance (SCI). Both the IBF and SCI still operate today, running training courses that are tailored to the industry's training needs. In fact, the IBF is now the national accreditation and certification agency for financial industry competency and administers local and foreign examinations which licensed financial sector professionals have to take.

More importantly, in those early days, close cooperation with financial sector players meant that MAS was often able to effectively use moral suasion to ensure banks adhered to policies. This involved the central bank setting the "rules of the game" for the financial institutions, informing them of areas that MAS would frown upon. MAS used this qualitative method of supervision quite effectively, with the instructions sometimes coming in the form of guidelines, a speech or a press release. These instructions were clear, but they were not issued as mandatory requirements, so financial institutions were left to decide whether to act on a new "rule" or piece of "information" that had been handed down. Many calculated, of course, that it was not in their long-term interest to offend the regulator. "I think it was during my tenure at MAS that I realise that moral suasion worked," Mr Wong says. "We didn't have to use those strong arm tactics. The message I tried to get through to our people was 'look, don't wield the big stick right from the beginning. Use your velvet gloves and convince them by discussion on what we are doing is the right thing or the way we want to do it.'"

Still, financial supervision was by no means a smooth sailing process. In its first decade of operations, MAS had to deal with several issues that could have posed a systemic threat to financial stability. The collapse of the Bretton Woods system in 1972 precipitated large and unstable capital inflows that sent interest rates skyrocketing. There was also the fallout from not one but two oil shocks within a few years of each other. And aside from these externally-triggered challenges, MAS had its fair share of domestic issues.

One such trouble was chit funds, akin to tontines, which grew in popularity during the late 1960s and early 1970s as rapid economic growth generated a demand for credit. Many individuals were unable or unwilling to engage with banks, which tended to lend against collateral. Some of them turned to chit funds, sinking their savings into these largely unregulated schemes to earn higher returns. This prompted Parliament to pass the Chit Funds Act in January 1972 to protect the interests of chit fund members. Shortly after the Act came into effect, MAS launched an investigation into the accounts of all 50 chit fund companies operating in Singapore. It seized the cash and account books of some of these firms which it deemed questionable and later issued a list of chit fund companies that it considered had sufficient assets to cover liabilities. But these measures were not enough to stamp out the risks posed by the schemes and, one year later, chit funds were banned altogether.

There was also the Slater Walker Securities episode of 1975. The company's chairman, Mr Jim Slater, was a British investor who specialised in asset stripping. In 1975, MAS discovered that the assets of a Slater Walker-controlled firm, Haw Par Brothers International, were being used for the benefit of certain executives in Haw Par and Slater Walker. Mr Hon, who was also MAS chairman at the time, told then-Prime Minister Lee Kuan Yew what he knew. Mr Lee, in turn, had to consider whether to take action. "Investigation into a big name in the London Stock Exchange, if not justified, would give us a bad reputation," Mr Lee recalled in his memoirs.[4] "Should we proceed against Jim Slater? I decided we had to if we were to maintain our standing as a well-managed stock exchange." In the end, Singapore did not allow

itself to be intimidated by Mr Slater's public profile, and the Republic earned itself a strong reputation for high standards of corporate governance.

As the decade drew to a close, however, the winds of change were already blowing and signalling the end to an early era in MAS' history of financial supervision, characterised by both close rapport with and close supervision of the financial industry. "We didn't want anything volatile. We didn't want surprises," says Mr Wong, summing up the regulator's approach. "I think that by and large we achieved that by watching all, whatever we felt we had to watch, and I think instinctively, we were able to do that."

Strengthening the financial system (1981–1997)

By the early 1980s, the international economic environment had turned increasingly inhospitable. In the 1960s and 1970s, many Latin American countries – notably Brazil, Argentina and Mexico – borrowed huge sums of money from international creditors for their industrialisation needs. These countries had soaring economies at the time, so the creditors were happy to continue to lend. But the sudden onset of recession in 1980 and 1981, in response to the US Federal Reserve's rapid raising of interest rates, dramatically changed the situation of these debtor countries. The dangerous accumulation of foreign debt eventually exploded into public view in August 1982, when Mexico announced to the world that it was unable to pay what it owed to its international creditors.

At the same time, MAS itself was undergoing a significant change in leadership. Singapore's economic architect, Dr Goh Keng Swee, had just taken over as chairman in 1980 and was determined to reorganise MAS to better serve its myriad functions. The onset of the Latin American crisis was a global economic risk that Dr Goh watched very closely, recalls Mr Koh Beng Seng, an officer in MAS' Money Markets Division who would later rise to become deputy managing director of banking and Singapore's chief financial regulator. "He was concerned about the banks' exposure to Latin American debt, as well as the contagion on our system," says Mr Koh. This sparked a sense that MAS needed to relook its supervisory approach to ensure that the financial sector was more resilient to any shocks that might come. With MAS entering its second decade of operations, it seemed an opportune time for this re-appraisal.

Dr Goh's priority, above all else, was to establish a sound and stable system in Singapore. "He was also interested to develop the market but he believed that if you don't have the proper supervisory regime in place, you would have a reputational problem," recalls Mr Koh. "You don't want to attract 'fly-by-night' type of institutions. He said that only reputable institutions should be admitted if we want our markets to be sound and stable. That was his belief. So that's why he laid down all those prudential rules and regulations."

Some commentators today draw a clear line between MAS' financial supervisory policies before and after Dr Goh took over at MAS. But in reality, Dr Goh merely strengthened the two central tenets that had guided MAS' work all along: to admit only reputable institutions and to monitor them closely afterwards. In a sense, MAS gripped the wheel a little tighter, but did not alter its course significantly.

Under Dr Goh's watch, MAS enhanced its "gatekeeping" role by tightening its watch over not just new banks, but also existing banks. Amendments to legislation included specific provisions that would enhance MAS' supervisory powers over banks, such as empowering it to extend the scope of the statutory audit and enlarge the responsibilities of external auditors. The amendments also set new rules to ensure the control of domestic banks did not pass into undesirable hands, and to limit the undesirable concentration of bank assets, such as heavy lending to a few big customers.

What is less well-known, however, is that Dr Goh's era also saw MAS actually cut down on the number of returns that financial institutions had to file, while ensuring that it still had adequate information for its supervisory needs. All but six of the 21 periodic reports submitted by banks and Asian Currency Units to MAS were terminated in 1981. MAS' Ticket System, under which banks had to submit "tickets" giving details of overseas transactions, was terminated in the same year, and the submission of returns on transactions in physical gold and gold futures was also discontinued.

Dr Goh's rationale was that a policy of greater self-regulation and self-discipline on the part of financial institutions should provide a better operating

environment. This meant that institutions should be responsible for compliance with legislation and other administrative guidelines that governed their operations. They were expected to run their operations prudently and to comply with both the letter and the spirit of all rules, regulations, and guidelines laid down by MAS. MAS would adopt an oversight role, intervening only if the institutions were unable to self-regulate properly.

But the quid pro quo to greater freedom was a much stricter policing of non-compliance. At an Association of Banks in Singapore (ABS) dinner in May 1981, Mr Herman Hochstadt, then MAS deputy managing director, gave notice of the change, warning that MAS would "come down very hard on those who cannot or will not maintain sufficient self-regulation". In line with this new approach, on-site inspections were stepped up and made more rigorous. Mostly conducted without advance notice, they tested and evaluated transactions extensively. Inspectors combed the books for control deficiencies both large and small, and bankers at the time remembered that such inspections were long and onerous on a bank's resources.[5] MAS also placed more responsibility on the external auditors who audited the books of the financial institutions, partly to reduce the pressure on the MAS resources devoted to detailed monitoring of individual institutions. The external auditors would verify institutions' compliance with financial regulations, the quality of their assets, and effectiveness of internal controls. The auditors would report such findings to MAS as well as to the management of the financial institution concerned.

Another immediate sea change felt by bankers was that MAS' Banking Department, led by Mr Koh, now maintained a more arms-length relationship with industry practitioners as Dr Goh felt that banks and regulators should not get too close. Indeed, being too close to bankers had its pros and cons, says former finance minister and MAS chairman Richard Hu. If MAS was too remote from the banking sector, it could end up making rules that were detached from reality. But if MAS became too friendly with bankers, it could overlook some of the risks that bankers might take. Dr Goh felt that any failure to apply regulatory standards consistently could be extremely costly. "It was a difficult balance, but Keng Swee always believed that you should lean more towards stricter regulations because in the end, MAS had the responsibility for maintaining the stability and integrity of the system," Dr Hu adds.

MAS-BNM Bilateral Meeting in 1996.

A more detached perspective allowed MAS to come down hard on banks and financial institutions that did not conduct business in a sound or prudent fashion. The crackdown on gold trading companies was an example of how far MAS went to punish those who could not or would not practise self-regulation. The gold market in Singapore in the early 1980s operated in two forms: an official market run by members of the Gold Exchange of Singapore (GES), and an unofficial market operating at night and run mostly by non-members of the GES trading gold futures. Banks, merchant banks and members of the GES were regulated by MAS, but the activities of many gold and commodities trading companies were only loosely supervised by the Ministry of Trade and Industry. Following complaints by investors that they had been cheated of millions of dollars by some gold and commodities futures trading companies, MAS became involved in investigations into the affairs of 24 such firms.

Due to the complexity of the case, four inspectors – two from the Commercial Crimes Division and two from MAS – were appointed to investigate the case. On

29 September 1982, the inspectors raided the premises of the companies and took possession of their books and documents. Preliminary investigations showed that five out of the 24 companies were already insolvent and 13 others, though not insolvent, were incurring substantial losses because of over-speculation and high overheads. To restore order to the gold market, MAS mandated that non-members of the GES would be banned from trading in gold for its customers. The central bank also tightened its grip on gold trading activities by appointing two senior officials – Mr Ng Kok Song, manager of the International Department, and Mr Koh Beng Seng – to the elected GES committee. More power was also given to the GES to discipline errant members.

Not long after, MAS commenced another crackdown – this time on bank directors who contravened the law governing director-related loans. Bank officers were taken to court and convicted, and a finance company also landed in hot soup. MAS petitioned in court in July 1983 to wind up the troubled Overseas Union Finance (OUF), triggering a run on the firm that, in three days, bled the coffers by close to $20 million, half of its deposit base. After the wind-up petition was served, MAS sent a circular to warn finance companies to comply with all rules and regulations. With its cash pile severely diminished, OUF agreed to MAS' application to appoint a provisional liquidator.

MAS served Overseas Union Finance (OUF) with a wind-up petition in July 1983.

Soon, the industry knew that MAS meant business and institutions tightened their internal controls and management practices. "It was really difficult," recalls Mrs Theresa Foo, Standard Chartered Bank Singapore's first Singaporean chief executive.[6] "Each time when my secretary told me at 9 am that Mr Koh of the MAS was on the line, I would say 'Oh no' as it was always a one-way conversation with him telling me what Standard Chartered Singapore had done wrong. But I must say that at the end of the day the strict supervision of banks ensured that the Singapore banking system remained sound."

Despite this strict enforcement of rules, reputable financial institutions were not discouraged from setting up shop in Singapore. In fact, foreign banks and financial institutions continued to establish and expand operations here and venture into new activities, including fund management and loan syndication. As long as they worked by the rules, they had the freedom to conduct their activities, says Mr Koh. "Most importantly you let your boundaries be known; we are very transparent," he says. "I remember one of the CEOs telling me, 'I like to come here although it's so far away for me because I know that someone is monitoring to ensure we operate prudently here. So I feel comfortable to let the branch do more business out of Singapore.'"

"Prudential supervision is not just an art or a science. It is a craft," says current assistant managing director Mrs Foo-Yap Siew Hong, who was overseeing banking supervision. MAS supervisors need to understand the risks banks undertake, she says. Mrs Foo-Yap illustrates: "MAS required Barings to conduct its futures activities in an entity separate from Barings' merchant bank branch in Singapore (BS). The decision then was to have the futures subsidiary owned and controlled by Barings London and not BS. As a result, BS was not dragged into insolvency and the Singapore banking system was not adversely impacted when Barings London collapsed."

Supervisors also have to be vigilant and fleet-footed in responding to global developments. Mrs Foo-Yap recalls: "Following the collapse of the Soviet Union, I received a call from the Bank of England (BOE), notifying us of their intention to close Moscow Narodny Bank (MNB), headquartered in London, the next day. We had to move our inspectors into the Singapore branch swiftly to ensure its assets were not dissipated or funds upstreamed to its Head Office. We decided not to close the branch and liquidate its assets as it was still solvent. Instead, we called

the Central Bank of Russia, the bank's key shareholder, directly, to provide capital to keep the branch in operation until the fate of its head office was clearer. The Russian central bank provided the necessary capital, which we managed to convince BOE to transfer to Singapore after very tough discussions. MNB's (now VTB Capital) Singapore branch is still around today."

A few years later, the Iraq-Kuwait War would result in the closure of the head offices of a couple of Middle Eastern banks with branches in Singapore. Despite the head offices' inability to provide support, the Singapore branches were able to repay all their liabilities and even had surplus funds on their books. Explaining why, Mrs Foo-Yap says: "We had, before the war, been monitoring the banks closely and had requested the head office of one of the banks, for instance, to transfer better-quality assets to Singapore and to take over the weaker credits to improve the overall quality of the branch's loan portfolio."

MAS continued to tweak the system in other areas to maintain stability and high prudential standards in the financial industry. During the 1980s, the Securities Industry Council (SIC), a consultative and advisory body, came under the purview of MAS. SIC was formed in 1973, with MAS' managing director initially serving as its chairman, and MAS taking on the secretariat role for the council. SIC's function was to advise the minister for finance on matters pertaining to the securities industry and to oversee the administration of the Singapore Code on Take-overs and Mergers. The SIC enforces the code and issues rulings on the interpretation of the code.

MAS also introduced new rules for the Stock Exchange of Singapore (SES), which it started to directly regulate in 1985. Legislation was introduced in parliament to tighten capital and financial requirements for operating a brokerage and introduce a new requirement to have independent directors on the SES board, previously dominated by broker-members. The new rules proved prescient. In December that year, the Pan-Electric crisis erupted, resulting in the suspension of trading on SES for three days and causing several stock brokerages to go under. Following the incident, MAS restricted the trading of forward contracts and toughened insider trading rules.

Of course, MAS' cautious approach was not restricted to the banks and financial institutions it regulated. MAS also introduced many initiatives on the consumer front to ensure individuals remained prudent with their money and investments. MAS had a hand in setting guidelines on the range of instruments that Central Provident Fund (CPF) members could invest their savings in. The guidelines were aimed at limiting Singaporeans' exposure to risky overseas markets or instruments. There was even a list of "trustee stocks" on the SES that members were allowed to put their money into. These guidelines have since been liberalised.

MAS also introduced a rule that limited a credit or charge card holder's credit limit with any individual bank to two months' salary. This was in force for almost two decades and only recently revised to four months of a cardholder's monthly income. Another change was the setting of a minimum annual income requirement for cardholders. Both rules were introduced by MAS in 1989 as a prudential safeguard for banks issuing credit cards and to keep Singaporeans from accumulating a high level of consumer debt. The policy's effectiveness can still be seen today in the relatively low charge-off and default rates on credit cards in Singapore.

Looking back, some have characterised the Goh Keng Swee era of financial supervision as tough and uncompromising. But Mr Tharman Shanmugaratnam, deputy prime minister and current MAS chairman, sees it as a regime that was appropriate for its time. "That was a time when Singapore needed to build up basic credibility as a financial centre. We had taken a couple of hard knocks from the Pan-El crisis in securities markets, and Barings in futures trading," he says. "To build up that credibility we had to do something simple extremely well, and show that this was a serious jurisdiction with high standards of regulation. We couldn't go about it in too nuanced and sophisticated a way because people would have lost sight of the main plot. And the main plot was that this is a strictly regulated financial centre, serious about the business of regulating both local and international banks and the securities markets, in a region that was growing well and therefore had great demand for financial services."

Supervision under Koh Beng Seng

Mr Koh Beng Seng is perhaps best known for helping the financial sector steer clear of many crises, through his formulation and implementation of MAS' regulatory and policy framework. He spent 25 years at MAS, rising to become deputy managing director responsible for banking supervision and financial sector development before leaving the organisation in 1998.

Mr Koh Beng Seng (left), then deputy managing director of MAS, with Ernest Wong (centre) and Peter Seah at the Association of Banks in Singapore's annual dinner in 1993.

Mr Koh's steady hand was in evidence every time a financial event threatened Singapore's stability and reputation. He dealt with the Pan-Electric crisis, for which he was awarded the Meritorious Service Medal, and the billion-pound fraud that knocked out British investment bank Barings. Major pieces of legal reforms passed in 1986 and 1987 – partly as a result of these crises – had his stamp on them, including amendments to the Securities Industry Act, Futures Trading Act, and Companies Act.

An infamous workaholic who was known for starting the day early and working late into the night, Mr Koh became the man bankers would most come to associate with MAS' stricter approach of the 1980s and 1990s. Under Mr Koh's watch, MAS carried out more surprise inspections and scrutinised banks' books more closely to ensure everything was in order. As a regulator, Mr Koh's own dealings with the financial sector were inscrutable. He owned no shares in listed companies and expected those under him, who dealt directly with these entities, to follow suit. Unlike his predecessors, Mr Koh rarely accepted any invitations to lunch, and definitely not from institutions that were under MAS' supervision.

There were critics who felt that MAS, under Mr Koh, was overly tough on those it supervised. Despite the complaints, however, there was never any doubt that these rigorous standards of banking supervision kept Singapore's financial sector sound. "There was greater certainty, greater trust in the counterparties, and there was regulatory certainty, not regulatory volatility as could have prevailed if you had a capricious governing system," observes former MAS managing director J Y Pillay.

In October 1997, Singapore's then-deputy prime minister Lee Hsien Loong brought up Mr Koh's name in parliament when recounting a meeting with a senior American banker. The banker had waxed lyrical about Singapore keeping out BCCI despite the bank's persistent lobbying, thus saving depositors here from being defrauded. Mr Lee said that the banker told him whoever resisted the pressure to admit BCCI deserved a commendation. "And this was MAS, which means Mr Koh Beng Seng," said Mr Lee, "and the ministers who backed MAS."

Mr Koh left MAS on 4 February 1998, citing personal reasons. By then, he had done much to move forward the development of Singapore's financial services sector while upholding its high standards of integrity. "Mr Koh Beng Seng, in particular, we regretted not being able to keep," reflects Mr Lee, now Singapore's prime minister. "He had been a key player in making the system work previously. And when we made these changes (to liberalise the financial sector), we really wanted him on board so that he could give us the benefit of his considerable knowledge and also his perspective on what we were doing. It's a pity we were not able to keep him."

Supervision in the new millennium (Post-1997)

MAS' next major phase in the development of its approach to financial supervision coincided with the outbreak of another crisis, this time closer to home. But even as the Asian region was preoccupied with the Asian financial crisis of 1997, globalisation elsewhere continued apace, spurred on by the twin driving forces of market deregulation and technological advances. With the ubiquity of the Internet and reduced telecommunications charges, markets were becoming increasingly borderless and banks, insurance firms and securities companies soon found that they were facing cut-throat competition. This sparked a worldwide trend of mergers and consolidation as financial institutions realised that the size and reach of their businesses had become paramount to continued survival.

For almost two decades, MAS had regulated the financial sector tightly with an emphasis on high standards of integrity and competence without stifling innovation

and openness in the industry. This approach proved its worth in the Asian financial crisis when Singapore and its financial institutions rode out the turmoil with relative stability. But new global trends in banking and finance made it clear that MAS had to adapt its approach towards supervision. To remain a sound yet dynamic financial centre, MAS had to give the industry more room to innovate, as well as allow liberalisation to take place and permit greater competition.

Mr Lee spoke of these changes in a groundbreaking speech in 1998, declaring that in this new environment, MAS had to take a bolder, less dirigible approach and let the industry embrace even greater self-regulation. This meant making two broad modifications to the way that MAS approached financial supervision. The first was that MAS would focus more on minimising systemic risk, rather than trying to protect individual firms or vet financial products. The idea was that investors should be allowed to judge and take risks for themselves, as long as all the risks are fully disclosed and they can make an informed choice.

The second change was to shift the emphasis from regulation to supervision – moving, in particular, from a set of "one-size-fits-all" rules to a form of oversight specially tailored to the characteristics of individual institutions. Also, while the relationship between the regulator and the regulated should be conducted at arms-length, it cannot be adversarial, added Mr Lee in 2002.[7] "The regulator has to be firm, but also friendly," he said. "Market practitioners can help regulators generate ideas, keep abreast of market developments, anticipate global trends and review our financial sector strategies."

"The way we used to do it was to have very strict edicts – what the banks can or cannot do," says Mr Lee, looking back on the changes now. "And it worried us because firstly, they were unable to develop and go into new areas. Secondly, we couldn't be sure that even within their approved scope everything would be safe. We had to shift to a culture where they would have their own risk controls and we would go on the basis of, what the jargon says, 'risk-based supervision'. Which means, 'When I go in, I will not try to inspect every transaction. I will sample, I will try and judge where your overall exposures are, where the concentration risks are and focus on them.'"

In fact, while MAS adopts measures to minimise the risk of a failure, it believes a "zero failure" regime is a challenge, because owners and managers of institutions, together with consumers, must be responsible for their own actions. Also, an excessive regulatory regime would be burdensome for financial institutions and affect their competitiveness.[8]

In moving to a more risk-based approach to supervising banks, MAS passed rules that reinforced the responsibilities of the board and management of financial institutions and strengthened corporate governance practices on these boards. Bank inspections have become shorter and more focused, but are also carried out more frequently and regularly, with the frequency depending on the bank's individual risk profile and supervisory rating, as well as its overall systemic importance.

During on-site inspections, MAS assesses – among other things – the institutions' internal governance and risk management systems and controls. Short supervisory visits are also conducted when necessary to complement on-site inspections, especially for banks with relatively long inspection cycles. Off-site supervision involves MAS assessing the financial condition of a bank based on its regular returns, supervisory reports, internal audit reports, and discussions with bank management, internal and external auditors. In addition to institution-specific inspections, MAS also conducts thematic inspections which target specific risks in the financial system. These cover a wide range of prudential, market conduct and risk management areas.

The overall objective is to pre-empt the risk of failure of institutions using an "impact and risk" model. Within each financial services sector, MAS first evaluates and rates the impact of an institution. Next, it uses the risk assessment system CRAFT – Common Risk Assessment Framework and Techniques – to evaluate the risk posed by that institution. It then combines the assessment of both impact and risk ratings and identifies those institutions that may pose a higher threat to the achievement of its supervisory objectives. It then determines the appropriate supervisory strategies and the level of supervisory intensity required.[9]

"We can't just go into the banks and pore through individual transactions in the hope of spotting mistakes or errors in risk judgements," explains Mr Tharman, explaining the overall approach. "The larger task is to assess the bank's strategy and plans, its risk profile and what the bank needs to be concerned about especially in a different environment. What is it in the broader disposition of their funds and liabilities management that could pose relatively higher or exceptional risks? And

what should their middle and top management be most concerned about a few years from now? Are they well prepared for it?" He adds that the MAS has also sought to prioritise its supervisory resources by taking into account the size of risks to the whole financial system. More attention had to be paid to systemically important banks and financial institutions. "We still have to go in and have a look at weak or small institutions – you can't neglect them because a problem there also affects confidence in the system," he says. "But they also have to be constrained through MAS supervisory action on their operations here rather than investing a great deal of on-site supervisory time and resources on them."

A final challenge that MAS has had to overcome in the new world order was one that resulted partly from the way it had been organised before. Financial markets were becoming more integrated and globalised and the innovation in financial products was blurring traditional distinctions between categories. More funds were being channelled into capital markets, while insurance was claiming a growing share of personal savings.

To cope with these changes in the global financial landscape, MAS has had to better harmonise and integrate its regulations and supervisory practices across different financial activities. But this would not be easy given that the MAS departments regulating banking, insurance and the securities industries had operated with little cross-interaction. "When I came in, I found great professionals. But we needed more open exchange amongst the leadership community, across departments," says Mr Tharman. As deputy managing director of what became the integrated Financial Supervision Group then, he had to make changes both within departments, such as bringing the on-site and off-site supervisors together, and getting exchange of people and ideas across different areas like banking and insurance. "It was made much easier by the fact that the staff were themselves keen."

Today, MAS evaluates locally-incorporated financial institutions in Singapore on a "whole-of-group" basis across their banking, insurance and securities activities. It also looks at these institutions on a consolidated basis, taking into account both their local and overseas operations. For example, insurers that are part of wider banking groups are monitored on a group-wide basis to assess the potential impact of the insurance business on their overall operations. In addition, MAS conducts macro-surveillance to identify and monitor risks that may threaten the stability

The 16th International Conference of Banking Supervisors, Singapore 2010.

of the financial system as a whole, and takes appropriate policy actions to mitigate such risks.

Its integrated approach to financial supervision rests on a framework that has four pillars: licensing, capital, risk-based supervision, and corporate governance.[10] In this new integrated regulatory framework, MAS is guided by the same two principles that have been in place from the start: consistency and flexibility. This means that, as far as possible, the regulation of similar financial functions, products or services is consistent across all types of institutions.

These principles were put to use, for example, in MAS' restructuring of the laws and licensing regulations in the securities and futures markets. Prior to the establishment of the current Securities and Futures Act (SFA), which MAS introduced in 2002, a securities firm wishing to expand into futures trading had to apply for and obtain a separate licence under another piece of legislation. This was a cumbersome process. With the SFA, which became necessary as a result of the merger of Singapore's stock and futures exchanges in December 1999, MAS forged a new licensing framework that was flexible enough to allow financial institutions

to undertake broadly similar classes of financial activity under a single licence. The Financial Advisers Act (FAA), which MAS introduced in 2002, is also a move towards consistent standards of business practice in the area of financial advice. Prior to the FAA, financial advisers needed to hold an array of licences if they wanted to sell different products, including stocks, life insurance policies and unit trusts. With the FAA, they need to hold only one licence, reducing their administrative burden.

While flexibility was a hallmark of many changes that MAS made in the new millennium, MAS had no fear in tightening the rules to ensure greater accountability and professionalism in the institutions that it regulated. For example, MAS introduced an anti-commingling rule in 2000. This was a move aimed at getting banks to focus on their core business and reduce the risks posed to the banking sector by unrelated, non-financial activities like property development. Such separation would limit the risk of contagion to banks from the failure of non-banking businesses.

In 2010, MAS issued a monograph that outlined its six tenets of regulation. It reiterated that regulations in Singapore cannot prevent all kinds of company shortcoming or failure. At the same time, the regulatory regime should not swing too far in the opposite direction, adopting an overly dynamic stance at the expense of a stable financial system. Seen as being at the heart of MAS' approach to regulation, the tenets stressed a balanced approach, committing MAS to consistently apply clear guidelines, yet be responsive to change and financial cycles. They acknowledge that responsibility for regulatory success is shared with financial institutions, investors and consumers and take account for the cost and compliance impact that new regulatory initiatives may have on them.[11]

Everything considered, however, one of the most significant changes to have occurred in the new millennium has ironically not much to do with the actual substance of financial regulation and supervision. This chapter started by highlighting the close rapport that MAS had with financial institutions in the early years of its history, a relationship necessitated by the need for a fledgling organisation to quickly grasp new innovations and developments on the ground and to understand global best practices. This was eschewed in the ensuing years in favour of a more arms-length approach. But today, MAS has come full circle, reprising an open and consultative style that has become crucial again in today's fast-moving and super-connected financial markets. MAS routinely consults industry practitioners on nearly all laws

and regulations that it is considering, issuing consultation papers well in advance of any changes, and publicly responding to concerns raised by financial institutions. It also regularly issues monographs detailing its "big picture" philosophy and approach to financial supervision, so that financial institutions can better see the consistency in its approach, and where the boundaries for added flexibility may lie. "Over the years, Singapore's reputation as a leading financial centre has grown from strength to strength," says DBS Group Holdings' chairman, Mr Peter Seah.[12] "We are very privileged to have a fair, firm and forward-looking regulator who has helped to put Singapore banks on the map."

Insurance regulation

Insurance companies have become more important than ever to MAS' overall objective of maintaining the credibility and stability of Singapore's financial sector. With growing affluence and the emergence of alternative distribution channels including bancassurance, insurance products have rapidly proliferated in the consumer market. At the same time, the products themselves have evolved, with significant savings and investment features that blur the product boundaries between insurance, banking and fund management. The near-collapse of American International Group (AIG) in the global financial crisis of 2008 also underscored how some insurers are inextricably integrated into the international financial system and may contribute to the build-up of systemic risks as they engage in financial activities beyond traditional insurance.

MAS took over the supervision of the insurance industry in 1977, after the supervisory functions under the Insurance Act were transferred from the Ministry of Finance that year. Led by insurance commissioner Tan Guan Aik, MAS began to take on a more proactive role in the supervision of insurers, while seeking to grow the industry in a measured and orderly manner. Consultative meetings were held between MAS and the life insurance industry to devise measures that would upgrade the standards of insurance agents entering the market.

Under the new leadership of Mr Law Song Keng as insurance commissioner during the 1980s, MAS further enhanced its supervision and regulation of the operations of insurers to ensure their compliance with the provisions of the Insurance Act. In August 1984, the MAS Act was amended to, among other things,

Dr Richard Hu speaking at the 13th Meeting of ASEAN Insurance Commissioners held in October 1987.

transfer to MAS the functions, duties and powers of the insurance commissioner under the Insurance Act. Then there was the Insurance (Amendment) Act of 1986, which made major changes to the existing legislation to improve the supervision of insurers, strengthen their financial position and protect policyholders' interest in cases of insurance company insolvency.

The Insurance Intermediaries Act 1999 and the Insurance Intermediaries Regulations 1999 followed at the end of the decade. They were introduced to promote greater professionalism in the insurance broking industry and to enhance the protection of the insuring public through requirements like registration with MAS and compliance with the stipulated regulatory requirements. They were subsequently repealed following the full implementation of the Financial Advisers Act (FAA) in October 2002, into which the laws governing the provision of the different financial advisory services, including the sale of collective investment schemes and life insurance, were consolidated. Minimum entry and examination requirements were set for financial advisers whose representatives commonly sold insurance. At the same time, routine and thematic inspections of insurance brokers were conducted, focusing on the proper maintenance and use of insurance broking premium accounts.

Given the importance and popularity of health insurance products, MAS introduced a new regulatory framework for accident and health (A&H) insurance in April 2004. Before the introduction of the Accident and Health Insurance Regulatory Framework, existing provisions were mainly geared towards regulating short-term health insurance products renewable yearly. The new framework governs the conduct of intermediaries selling A&H products, ensuring that customers are adequately advised on how to make sound product choices. MAS also worked with the Life Insurance Association of Singapore (LIA) to standardise the definitions of critical illnesses (CI) used in policies, aiming to reduce confusion among consumers and ensure they do not inadvertently end up with less coverage than they need. Finally, the new regulatory framework also allows for greater competition and a more level playing field among the insurers.

On 23 August 2004, MAS implemented a new risk-based capital framework for insurers in Singapore, the result of four years of extensive study and close consultation with the insurance industry. The milestone framework puts in place a more transparent and risk-focused system that reflects all major financial risks of insurers. This encourages insurance companies in Singapore to manage risk more actively, raising overall prudential standards in the industry. Additionally, MAS introduced general risk management guidelines for all financial institutions in 2006, augmenting this with an additional set for insurers in November 2007, covering areas such as product development, pricing, underwriting and claims handling.

MAS has also taken steps to improve disclosure in the industry, so that investors and consumers can make informed decisions about the policies they buy. Transparency has been improved both in the way products are distributed, as well as in the workings of the products themselves. Insurance agents, banks and other distributors now have to reveal the details of commissions that they earn from selling different types of policies. In addition, a slate of measures have been introduced which include requirements for better product summaries, more timely disclosure of bonus rate changes, and clearer statements on how a life insurer's participating fund is managed and governed.

Conclusion

The global financial crisis of 2008 did not greatly impact Singapore's financial sector. While equity markets suffered a big fall, the domestic financial system remained healthy and Singapore banks have been more resilient than many global banks throughout the crisis. They may have suffered some damage to their asset quality, but they were able to sustain their earnings and maintain very liquid and well-capitalised balance sheets. Singapore was spared partly because financial institutions here have been conservative and prudent, and this has been the direct result of MAS upholding high standards of supervision and risk management. It is this careful approach that has allowed Singapore to build a worldwide reputation for being a stable and well-regulated financial hub, and will stand it in good stead for the decades to come.

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SAFEGUARDING THE CONSUMER

Central banks and financial regulators are often seen as secretive and aloof institutions that implement economic and financial policies from a control tower high above the ground. They are feared by banks and keenly watched by economists, yet all but invisible to the man in the street. In a way this is ironic; after all, the main reason central banks work so hard to ensure economic and financial stability is for the sake of ordinary people. In recent years, MAS has come to recognise that more must be done to connect with the public, be they consumers, investors or depositors. By doing this, the Singaporean community can put a face to one of its most powerful economic bodies, and MAS can make its policies better understood and more effective.

Since the late 1990s, MAS has shifted its focus in financial regulation from a prescriptive, merit-based system to a more transparent, disclosure-based regime. This means moving away from its old practice of screening investment products to assess their suitability for the general public. Instead, financial institutions are given greater scope to proffer products and services, as long as they fully disclose the risks in a timely and clear manner, and have a reasonable basis on which to recommend the product. With this shift, it has also become more important to educate consumers on financial affairs, and to equip them with the basic financial literacy skills necessary to make informed decisions.

Investor protection

All financial regulators have to deal with the question of how much they should protect retail investors from the occasional negative consequences of their decisions. On the one hand, it is costly and cumbersome for such investors to take legal action against large financial institutions if they feel they have been aggrieved, so the threat of punitive action by the financial regulator often functions as the sole deterrent against product mis-selling, misleading sales tactics and other misdemeanours. On the other hand, riding to the rescue of retail investors each time something goes wrong gives rise to a serious moral hazard problem. Investors stop taking responsibility for their own decisions and expect that the regulator will bail them out when they make bad decisions.

In addition, MAS has to consider the operating environment of the financial institutions it regulates, most of whom sell the same products and services in many other jurisdictions around the world. A regulator that arbitrarily punishes wrongdoing and orders full compensation may be popular with the general public, but will lose credibility with the global institutions that it oversees. Conversely, a regulator that consistently takes the side of financial institutions, perhaps for fear of driving them away, falls short of meeting its public service obligations to consumers.

MAS therefore strives to strike a balance between these competing objectives in undertaking the important task of investor protection. Instead of rushing into an enforcement action, it first mounts an investigation of a problem to establish clear lines of accountability for what happened and decides on the appropriate regulatory action according to the circumstances. This is followed by a review of industry practice to ferret out any systemic weaknesses that need to be addressed.

In recent times, MAS has imposed penalties and suspensions for a range of offences, from misleading initial public offering (IPO) investors and life insurance policyholders to engaging in dubious sales tactics like churning. But MAS' investor protection role was brought home in a particularly urgent way during the global financial crisis of 2008, when some Singapore investors woke up to find that American investment bank Lehman Brothers had collapsed and that their supposedly-safe investments in certain structured products had lost most of their value or were rendered worthless. MAS launched an investigation into whether the financial institutions had mis-sold these complex structured products to unsophisticated investors, who believed the instruments to be low risk.

The year-long investigation culminated in bans being imposed on 10 financial institutions on the sale of structured notes for minimum periods ranging from six months to two years. A new set of stricter requirements were also drawn up for sellers of investment products, to ensure that investors are aware of the risks that each product carries. Among other things, financial institutions must now provide additional simplified disclosure documents for certain investment products that they sell. They must also perform an assessment of an investor's knowledge and investment experience before selling them such products.

MAS also left nothing to chance in the legal fight to recover any residual value from the failed Lehman Brothers Minibond Programme notes. It appointed one of Singapore's top litigation lawyers to advise it on the implications arising out of the Chapter 11 bankruptcy proceedings for Lehman Brothers in the US.

In February 2010, MAS announced the final distribution of recovery values for Lehman Brothers Minibond Programme notes for almost 8,000 retail investors. Taking into account the recovery values of the notes and the settlement offers that have been accepted, 80 per cent of retail investors received half or more of their investments back. In total, retail investors in the Minibond Programme notes received 64.5 per cent of the total amount invested in the notes.

Looking back, former managing director Heng Swee Keat, who was at the helm of MAS then, says that there was a lot of pressure on the government to act quickly and decisively. "A lot of people lost money then and were very upset about it," he says. "But when we started looking at the facts and specific cases, we found that there was quite a wide range of circumstances. There were cases of mis-selling, but not all cases were such. Hence, we needed a rational approach, based on fair principles. And at the same time, it had to be an approach that was credible to investors and the public. MAS could not afford to just take short cuts."

That short cut might have been to just decide on a level of compensation that was politically expedient and apply it to everyone, clean and simple. But that would not have been fair, argues Mr Heng. "It would [also] have set a precedent and created moral hazard and investors would not take responsibility for their decisions in the

future. And we wouldn't want to go back to those days where the MAS regulated on the basis of the merits of the products," he says. "We thought that, however difficult it was, we should stand firm and be principled. So we went through a much more laborious and difficult process, because obviously investors who didn't get compensation were very unhappy. But ultimately, it was a fairer process."

Still, the regulator cannot intervene in every dispute between financial institutions and consumers. This is why, on 31 August 2005, the industry came together to create an independent one-stop dispute resolution centre covering banking, capital markets and insurance disputes, subsuming the work of two dispute resolution units for banking and insurance disputes. This has helped consumers resolve their disputes with financial institutions in an efficient manner. To date, the Financial Industry Disputes Resolution Centre Ltd (FIDReC) has handled more than 6,000 consumer complaints, obviating the need for retail consumers to take costly and time-consuming legal action to resolve their disputes.

With effect from 15 April 2009, common financial products and services were also included in the Consumer Protection (Fair Trading) Act, or CPFTA. The Act is designed to protect consumers who lack the expertise or financial resources to guard against unfair or improper practices, and to enable consumers who are treated unfairly to obtain justice through the civil courts. MAS has successfully worked with the Ministry of Trade and Industry (MTI) in extending protection under the CPFTA to financial products and services.

But there is scope for MAS to play a more direct role in protecting the investor, according to emeritus senior minister and former MAS chairman Goh Chok Tong. This is especially since investment instruments are becoming more complex by the day. "When riskier products are sold here, I think we have to be more vigilant in scrutinising them. That is, to look at the nature of the products and ask ourselves some very sharp questions as to whether we actually understand what the products are … and the risks involved, not just from a systemic view," he says. "If people don't understand the risks, then MAS has the right to impose further safeguards or restrictions," he adds.

But once these safeguards and resolution processes have been made clear and put in place, MAS should refrain from acting in a populist manner when things go wrong, emphasises Mr Goh. "We have to avoid moving into that area where your gut instinct is to help a large number of people, and look at the banks' interest because we are a financial centre," he says. "If you take a political approach and arm-twist the local banks, they will be most unhappy but you can perhaps get away with it. But we also have foreign banks, and if you take the side of the retail investors where there is no merit, and you arm-twist the foreign banks to pay them, I think the result will be damaging to the reputation of Singapore as a financial centre. So we have to intervene with a very balanced, very objective and very calm approach in handling the complaints of investors."

Consumer education

Consumers may not always be experts in choosing financial products and financial services providers, but it is neither feasible nor desirable for MAS to tell consumers what financial products they can or cannot invest in, how these products should be priced, or what the terms and conditions governing the transaction should be. To do so would severely inhibit business enterprise, restrict consumer choice, and raise compliance costs.

Instead, MAS seeks to empower consumers by enhancing their knowledge of common financial products and services. Perhaps the most visible sign of its efforts to engage the public is MoneySENSE, a nation-wide financial education programme that caters to consumers from all walks of life. MoneySENSE initiatives cover a wide range of topics, ranging from basic money management to financial planning and choosing suitable investment products. In launching the programme in October 2003, Mr Lee Hsien Loong, then Singapore's deputy prime minister and MAS chairman, said: "In this new and changing environment, Singaporeans need to become more self-reliant in their financial affairs. They must acquire the knowledge and skills to manage their day-to-day finances, make prudent investments and plan for their longer-term needs."

When MoneySENSE conducted Singapore's first national financial literacy survey in 2005, it found that the majority of Singaporeans save their money, monitor their spending, are generally responsible in the use of credit and recognise

MoneySENSE held a financial education road show at the Toa Payoh Housing and Development Board Hub in 2006.

the importance of financial planning. However, many had inadequate savings for emergencies, did not have a clear idea of how much they would need for their retirement, and showed a lack of understanding of common financial products.

Today, MoneySENSE reaches consumers through several channels: written articles, talks, consumer guides, TV and radio programmes, the MoneySENSE website and even Facebook. As at 30 June 2011, it had published over 230 educational articles on its website and in the media, including all the major Singapore newspapers. Close to 30 consumer guides have been issued and are available online, with a total circulation of over 2.2 million. On top of this, MoneySENSE has organised talks, seminars and workshops attracting more than 65,000 participants. These talks are conducted by volunteer speakers from industry associations.

In the years since it was launched, MoneySENSE has stepped up its pace in delivering financial education to the population and has extended its reach through more creative channels such as TV and radio. In 2006, MAS sponsored a first-of-its-kind financial education TV game show, *Dollars & Sense*. Contestants on the programme made a myriad of financial decisions: whether to purchase certain items, whether to take on more credit or buy insurance, and whether to invest in financial products. The show brought in over 1.3 million viewers and also enjoyed

a different kind of success when it was nominated for Best Variety Programme in TV's 2006 Star Awards. In the same year, MoneySENSE ran a series of radio programmes broadcasting tips on various aspects of money management. In 2009, MoneySENSE launched the "Mind Your Money" series of seminars and radio programmes in partnership with MediaCorp. Popular local celebrities brought money management to life by sharing their own personal tips and investment experiences with the audience.

In order to meet the needs of different segments of the population, MoneySENSE has also co-funded programmes organised jointly with community groups. For instance, MoneySENSE helps to sponsor basic money management programmes for low-income families, as well as financial education games for students.

Since good money habits start young, MoneySENSE has also partnered the Association of Banks in Singapore (ABS) and the Ministry of Education to teach primary school students about the importance of savings, using an interactive skit called "Saving – the Sensible Habit". For older students, MoneySENSE co-funds programmes that teach financial education through activities such as board games, quizzes and competitions. More than 100 schools and over 70,000 students have participated in these activities. For those already out of school, MoneySENSE has linked up with the Central Provident Fund (CPF) Board and NTUC to raise working adults' awareness of how to become more self-reliant in managing their financial affairs and plan for their longer-term needs. In the wake of the financial crisis, MoneySENSE partnered the Securities Investors Association of Singapore (SIAS) to develop a list of 10 important questions investors should ask before buying a structured product.

Deposit insurance

Financial regulators must also be prepared for other contingencies, and one of the most feared emergencies, for regulators as well as depositors, is a bank run. To build confidence in the banking system and prevent such an occurrence from happening, MAS announced in June 2002 that it would introduce a deposit insurance scheme, similar to existing schemes in about 80 countries worldwide. In the event that a bank or finance company fails, the scheme would guarantee a limited amount of

the deposits that each individual has made. A Deposit Insurance Act was drawn up in 2005, and the scheme officially took effect from 1 April 2006. At the time, individuals and charities could get back the first S$20,000 of their Singapore dollar deposits in standard savings, current and fixed deposit accounts – net of liabilities – should their bank or finance company fail. The limit was recently increased to S$50,000 in May 2011. The compensation comes from a fund that banks and finance companies pay premium contributions to. A separate agency, the Singapore Deposit Insurance Corporation, was set up to administer the scheme and manage the fund.

The need for this deposit insurance scheme was explained by Mr Tharman Shanmugaratnam, then deputy chairman of MAS, in a speech in parliament in 2005 to move the Deposit Insurance Bill. Mr Tharman assured parliament that Singapore's banking system remained sound, but warned that banking businesses are growing in complexity and scope, which will present challenges in financial supervision. "Increasingly, the operations of banks with a global and regional presence are influenced by factors beyond the control of the supervisor in any one market," he said. "International experience has shown that the possibility of a bank failure and loss to depositors cannot be eliminated even in reputable and well supervised jurisdictions." He reiterated MAS' view that the regulator should not "seek to eliminate all risks of failure" by introducing strict and onerous rules on banks, because this would stifle enterprise and ultimately weaken financial institutions.

The deposit insurance scheme, Mr Tharman said, serves two purposes: it provides adequate protection for small depositors, but at the same time sets a limit on the extent of protection that the government can be expected to give. In other words, it dispels the misperception that the government will implicitly guarantee all bank deposits in Singapore. Only individuals are covered by the scheme – businesses are not – and they will be compensated on a per depositor per institution basis, rather than on a per account basis.

During the global financial crisis, this deposit insurance was expanded for a limited time to guarantee all Singapore dollar and foreign currency deposits of all depositors – whether companies or individuals – that had put funds in banks, finance companies and merchant banks licensed by MAS in Singapore. In other words, in the event of a bank failure, the government would guarantee the full amount of each depositor's funds, from the time of the announcement in October 2008 until 31 December 2010.

The reason for this unprecedented deposit guarantee was not because MAS feared the weakness of banks in Singapore. On the contrary, the domestic banking system remained sound and robust; in fact, in the weeks leading up to the announcement of the guarantee in October 2008, MAS had said such a move would not be necessary in Singapore. However, because several other jurisdictions in the region were going down the deposit guarantee road, Singapore had no choice but to follow suit to avoid losing depositors to other countries. "If Singapore had not introduced a similar guarantee, there was a real risk that depositors would have shifted some of their deposits out of Singapore banks to banks in other jurisdictions which guarantee deposits," said Mr Lim Hng Kiang, Singapore's trade and industry minister and MAS' deputy chairman, in a ministerial statement in October 2008 on the deposit guarantee scheme. "This would have weakened financial institutions here."

If banks in Singapore became less competitive, this would have a critical impact on the whole economy – which was already in the grip of its worst recession in modern history – because financial services account for 12 per cent of Singapore's gross domestic product (GDP) and 5 per cent of its employment. "Beyond this substantial direct contribution to GDP, the financial sector plays a critical role in intermediating credit for the economy, and in providing other critical financial services to companies and depositors in Singapore," Mr Lim said in his statement. "It is therefore important for the whole economy that the financial sector continues to function normally. Should financial institutions in Singapore become less competitive or credit becomes less readily available, it would hinder the financing of economic activities and raise the borrowing costs of businesses. This would aggravate the already challenging economic situation and thereby adversely affect our growth and jobs."

The deposit guarantee also served to bolster public confidence in Singapore's banks, and demonstrated the government's own confidence in the soundness of the domestic financial system. MAS and the Ministry of Finance, which collaborated on the move, assessed that S$150 billion in backing from Singapore's reserves would

be more than enough to cover the guarantee. Indeed, they did not expect that any of these funds would have to be used at all – a belief that turned out to be correct. By the end of the global financial crisis in 2010, Singapore was enjoying its sharpest economic rebound in history and set to achieve record growth.

Seven

DEVELOPING A FINANCIAL CENTRE

In the late 1960s, the Singapore government recognised that the country's financial sector could do more than simply catering to local residents and foreign corporations that had newly set up offices and manufacturing plants on the island republic. Taking advantage of Singapore's longstanding position as a trading hub in Southeast Asia, a development strategy was mapped out for the country to become an offshore trading centre for foreign currencies. This led to the establishment of the Singapore-based Asian Dollar Market (ADM) and later, a mushrooming of foreign banks that engaged in foreign exchange trading. Since then, the development of the banking and foreign exchange markets in Singapore has always been intertwined. While the banking sector grew strongly in tandem with the rapid economic growth that the nation was experiencing, the growth of the foreign exchange market exceeded that of the economy and helped spawn a thriving global banking hub.

This chapter looks at the basic building blocks that have enabled Singapore to develop as a successful financial centre, as well as some of the key policy issues that had to be considered along the way. For example, MAS has needed to strike a balance between the twin objectives of growing an international financial centre and insulating domestic banking from the vagaries of the offshore banking sector. It has also needed to consider the extent to which local banks and financial institutions, in

the early days of development, needed to be protected against foreign competition. Today, Singapore is considered one of the leading financial centres of the world. The history of its development is relatively short, but the journey has been anything but straightforward.

Getting the basics right

Some of the building blocks of Singapore's success as a financial centre are tangible, such as a time zone advantage and the availability of world-class communications and payments networks. But there have also been several "intangibles" that are no less important, including the strong rule of law, an honest and competent government and the stability of its currency.

Located in resource-rich Southeast Asia, Singapore has used its geographically strategic location to good advantage as an entrepôt trading hub since the early 19th century. To position itself as a financial centre, Singapore also relied on its time zone as a strategic asset. In 1968, noticing a lull period in global markets between the close of markets in New York and the opening of markets in London, Singapore realised it could step in to bridge this gap and help create a continuous 24-hour round-the-world service in money and banking.

Calling it "a most improbable start" in his memoirs,[1] former Prime Minister Lee Kuan Yew recalled that it all began with a phone conversation between Mr Albert Winsemius, Singapore's economic adviser at that time, and Mr J D van Oenen, who would later become vice-president of the Bank of America branch in Singapore. Mr Winsemius wanted to know how Singapore could be the financial centre of Southeast Asia within 10 years. Mr Van Oenen, then based in London, pointed out that Singapore's location complements the time zones of Europe and the Asia-Pacific region, and could facilitate an almost 24-hour unbroken cycle of trading in currencies and securities.

At Mr Winsemius' request, Mr Van Oenen wrote a paper on the subject and sent it to the late Mr Hon Sui Sen, who was then chairman of the Economic Development Board. Seeing merit in the proposal, Mr Hon approached Mr Lee to suggest that foreign exchange control restrictions be lifted on all currency transactions between Singapore and territories outside the sterling area. This paved

The Central Business District of Singapore in the 1970s.

the way for the subsequent setting up of the Singapore-based Asian Dollar Market and an international market for transactions in foreign currencies via global trading books that moved with the sun.

The time zone advantage has served Singapore well. In the morning, Singapore bankers and traders take their cue from US markets, which would have just closed at about 5 am Singapore time, and conduct business with other Asia-Pacific centres such as Hong Kong, Tokyo and Sydney. In the early afternoon, they can transact with London and the rest of Europe as these markets begin their work day. As a result, Singapore served to bridge the gap between East and West at a time when funds were flowing strongly into a rapidly industrialising Asia. Singapore's first mover advantage has also strengthened as globalisation and technological advances eventually led to a truly global monetary system of floating currencies and interconnected banking and securities markets.

In the early 1980s, MAS zeroed in on the relative importance of telecommunication services to the banking industry and advocated more efficient and sophisticated facilities at more competitive rates. Reductions in international

telephone and telex charges eventually materialised for various Asian destinations in 1981 and 1982. Financial institutions further benefited from the government's move to liberalise the telecommunications market in the mid-1990s. New entrants to the industry set their sights on global financial institutions as key clients and competed aggressively to offer dedicated leased lines and data centre network support. Today, Singapore continues to leverage on the latest technology to improve its telecommunications infrastructure. The entire country is now being networked by OpenNet, using new fibre-optic cables that will link businesses, government agencies and households in a giant, ultra-high speed information system.

Singapore's excellent transportation links also played a significant part in its strategy to be a financial hub. On-island transportation is convenient, while Singapore boasts one of the world's busiest seaports, handling ships carrying goods and passengers from all over the world. Singapore is also a major regional air transport hub with more than 90 airlines flying to 200 cities around the world – a crucial factor in its development as a financial centre. In particular, it is within a seven-hour flight radius of North Asian markets including China, Hong Kong and Tokyo, South Asian markets such as India, and Southeast Asia. This is why Singapore serves as the regional headquarters – and, in some business operations, the global functional headquarters – for many international banks.

In building up Singapore's financial centre capabilities in the early years, MAS also recognised that international financial institutions would increasingly prefer hubs that provided world-class payment networks with more competitive transaction costs, shortened settlement time and reduced risk. As transactions in foreign exchange, treasury and capital markets grew, MAS recognised that Singapore's competitive advantage must rest in its ability to move quickly and implement the right infrastructure. By becoming a member of the Society for Worldwide Interbank Financial Telecommunication (SWIFT), Singapore-based banks were linked globally via the international payments and message delivery system. Former deputy managing director for banking Koh Beng Seng remembers arguing for the introduction of more innovations in the financial sector. "At that time, we pushed for the set up of an automated cheque clearing system, NETS, Cashcard, the MAS Electronic Payment System (MEPS) and so on," he says.

Then Deputy Prime Minister Lee Hsien Loong (second from left) slotting a smartcard into a smartcard reader to launch the MAS Electronic Payment System (MEPS) in August 1998, with (from left to right) Ms Yeo Lian Sim, assistant managing director, Markets & Investments Department, MAS; Mr Koh Yong Guan, managing director of MAS; and Mr Ng Kee Choe, president of the Association of Banks.

"MAS, as the catalyst of the financial industry in those years, played a very critical role," says Mr Gerald Chan, current country head and chief executive for UBS Singapore, who used to head the Swiss bank's foreign exchange sales business for South and Southeast Asia. "Singapore aspired to be a major financial hub. Technology was, and still is, a significant enabler but in the early days it was also a platform for competitive advantage." [2]

Launched in 1998, MEPS, a real-time gross electronic payment and settlement network for banks, allowed instantaneous settlement of interbank payments on a gross basis. MEPS was replaced by MEPS+ in 2006. MEPS+ uses the SWIFT network and SWIFT message format to enable banks to ride on their existing SWIFT infrastructure to reduce cost and to facilitate banks' disaster recovery arrangements with their head offices.

Another key innovation, the Cheque Truncation System (CTS) was introduced in 2003. It was then the world's first nation-wide image-based cheque clearing

system. It marked the start of the electronic clearing of cheque images in Singapore, eliminating the need for physical clearing of cheques between the banks and the clearing house.

Yet, having the right infrastructure can only go so far. The development of a financial centre is predicated on many intangibles. These include a fair and impartial judiciary to ensure certainty with respect to property rights and contract enforcement. Clear and transparent rules set legitimate expectations about what is acceptable behaviour and conduct, and foster a fair and competitive environment. The MAS Act, Banking Act, Finance Companies Act, Insurance Act, Securities and Futures Act, and the Financial Advisers Act form the key pieces of legislation that establish a legal framework for MAS to supervise financial institutions effectively. Financial institutions are expected to observe not only the letter but also the spirit of the requirements contained in these acts.

Like the rule of law, integrity and trust have long been the cornerstones upon which Singapore has developed its marketplace over the years. Investors trust in the fairness of Singapore's regulations, the impartiality of its courts, and the professionalism of its officers. "I think Singapore to a fair extent sells itself ... because people believe that you can be trusted," says Mrs Elizabeth Sam, who was chief manager of MAS in the 1970s. "If you put your money in a Singapore bank or Singapore-supervised bank, your money is more likely to be safe than if you put it somewhere else. I think that probably is also something that has emerged from Singapore's evolution as a country, how it is governed and so on." Mr Lim Ho Kee, a former top banker and regulator who is currently chairman of Singapore Post, recalls that it was not just good fortune that saw Singapore clinch a partnership with the Chicago Mercantile Exchange (CME) to pioneer the world's first mutual offset trading system.[3] It was also the country's reputation for an ethos of integrity that gave then-CME chairman Leo Melamed and his Chicago colleagues the confidence to throw their lot in with the Republic. "Think about it – they had built a tremendous track record and at that point of time they were the largest pool of liquidity in financial futures. Without liquidity, no financial exchange will take off. And they had to expose themselves to us," says Mr Lim. "They may have had to ask themselves what happens if Singapore cannot execute things properly; what happens if there are all kinds of bad accounting practices or fraud in Singapore which will expose their members to risk ... But because Singapore is what it is, they could trust us. Without our infrastructure, without our knowledge and without our reputation for character and integrity, this would not have happened. Singapore has integrity. A contract is a contract. The same rules apply to foreigners as they do to Singaporeans. That has a large part to do with our success as a financial centre."

Finally, a pre-requisite for the development of a financial centre is macroeconomic stability, which has also been a top priority for Singapore given its unique economic circumstances. It is a small, open economy vulnerable to the vicissitudes of international markets, and cannot afford to have external investors lose confidence in its political or economic stability. Former Finance Minister Goh Keng Swee noted this as early as 1969. "For us in Singapore, the road to greater wealth is through thrift, enterprise and hard work. The road to stability lies in prudence and foresight and prosperity and patience and fortitude in adversity," he said.[4]

All these factors have come together to ensure that Singapore continues to provide a compelling value proposition as a global financial centre, despite its relative small size and the emergence of rival centres in Asia. "The rule of law, the responsiveness of the system, the long term stability of Singapore – all these are key elements underpinning the competitive financial system," says former MAS managing director Heng Swee Keat. "The areas I think we can continue to play a role are areas where a high degree of trust and knowledge and innovative capacity is important."

Asian Dollar Market

With these fundamentals in place, Singapore has constantly looked outside of its small domestic market to engender growth in its financial sector. Its first success came in the form of the Asian Dollar Market (ADM). The concept had been talked about since the early 1960s when financial institutions and policymakers recognised that the foreign currency holdings of residents in Asia could be pooled, traded and utilised more productively.[5] The market could be located anywhere in Asia, but Singapore had several advantages to offer.

At around the same time, Bank of America was looking to expand its Asian operations to accommodate customers who were showing increasing interest in

the region. Moving funds from North America into and out of the region would have been administratively clumsy, so the bank was considering establishing a new banking facility in Asia, capable of servicing both international and local customers.[6] To ensure the flow of funds into the ADM did not disrupt monetary management, it was decided that any financial institution seeking approval to operate in the ADM should set up a separate book-keeping unit for such transactions, which would be known as an Asian Currency Unit (ACU). The ACU would be permitted to accept deposits from non-residents and to lend US dollars and other foreign currencies to finance activities outside Singapore. When Singapore established the ADM in 1968, Bank of America was the first bank to be granted approval to undertake these offshore transactions.

In a speech in 1972, Mr Hon said that there was much initial scepticism about the concept of an ADM in Singapore.[7] But the idea caught on and money began flowing into the ACUs. Starting with just US$33.16 million in 1968, monies in ACU accounts grew quickly to cross the US$1 billion mark in just three years. Total assets in the ADM reached over US$1 trillion in April 2011.

The success of the ADM and the growth of foreign exchange trading led to robust growth in the banking sector. In order to draw international banks to set up offices in Singapore without causing excessive competition in domestic banking, MAS began to issue new types of licences for specific banking activities. In 1971, MAS created a special category for banks – "restricted licence" banks – to broaden the base of the banking system and to accommodate the further entry of commercial banks. Restricted banks could engage in the same domestic banking business as full licence banks, except that they could only have one main branch and could not operate Singapore-dollar savings accounts or accept Singapore-dollar fixed deposits of less than S$250,000 from non-bank customers.

Two years later, in 1973, MAS felt that Singapore's goal of becoming an international financial centre would benefit from the entry of more foreign banks of good standing. This led to another category of commercial banks, called "offshore banks", being established. Offshore banks operated mainly in the ADM and foreign exchange market, and conducted wholesale banking with non-residents. While offshore banks had the same opportunities as the full and restricted banks in the foreign currency deposit business, their scope of business in the Singapore-dollar retail market was more limited. Today there are more than 150 licensed commercial banks and merchant banks that do business – including ACU activities – in Singapore.

Foreign exchange

The establishment of the ADM meant that there was much potential to grow a thriving market in foreign exchange in Singapore but, until the early 1970s, the workings of the market here were simple. Transactions by banks were largely confined to the squaring of foreign exchange positions following their sales and purchases with non-bank customers that were doing business in Singapore.[8] Rates were determined by an old cartel system, and there was no incentive to be innovative. After the Singapore dollar was allowed to float in 1973, banks were free to quote their own foreign exchange rates, and this resulted in keener competition.

MAS policymakers decided to make global foreign exchange trading one of Singapore's niches. Former finance minister and MAS chairman Richard Hu says that this was a carefully considered choice. "If you want to develop Singapore as a financial centre, you have to become 'number one' in a particular niche of financial services, and the area we ended up identifying was foreign exchange trading," he says. "We were not able to compete in the loan syndication market compared to Hong Kong but because we had the offshore US dollar funds, we were able to establish ourselves as a funding centre. In the end, we developed two niches. One is a funding base and the other, the foreign exchange centre."

This development was aided by economic conditions in the 1980s, which were conducive to the growth in foreign exchange transactions. International trade was expanding rapidly and there had been financial deregulation in major industrialised countries. There was also a mismatch in fiscal and monetary policies in the US and elsewhere that was giving rise to higher volatility in exchange rates. The establishment of the Singapore International Monetary Exchange (SIMEX) in July 1984 further broadened the foreign exchange market by offering currency futures contracts alongside other financial futures. Singapore's foreign exchange market became part of the round-the-clock market, with several of the leading banks installing a regular night-shift in the dealing room.

By the late 1980s, more financial institutions had started to establish treasury activities in the Asian time zone, especially with Tokyo's rise as a major financial centre. The ADM in Singapore was also attracting multinationals to set up their regional treasury and financing operations here. This continued to benefit Singapore's market as the number of participants, both banks and non-banks, and the size of transactions expanded considerably. Banks soon started to shift their emphasis away from basic foreign exchange to more sophisticated products and derivative markets. This led to higher levels of activity in instruments like currency options, forward rate agreements and interest rate structured products. Singapore's foreign exchange market is now the fourth largest in the world after London, New York and Tokyo. According to the Bank for International Settlements (BIS), average daily foreign exchange turnover volume in Singapore had grown to US$266 billion by April 2010. Daily turnover surged to an all-time high of US$361 billion in April 2011.

Futures trading

The same maxim of outward orientation governed the development of Singapore's global capital markets, which began in earnest with a revolutionary move in the early 1980s to establish a trading link between the futures exchanges of Singapore and Chicago. An invitation was extended to key members of the CME to come to Singapore for exploratory discussions. The CME was, at the time, looking for a partner in Asia to provide 24-hour, round-the-clock trading of Eurodollar futures. This was partly in response to competition posed by the London International Financial Futures Exchange (LIFFE), which had started a rival Eurodollar futures contract. Mr Lim Ho Kee and Mr Ng Kok Song, then-manager of MAS' International Department, were instrumental in the setting up of SIMEX, the new entity that would eventually partner the CME. Mr Lim was at that time also the deputy managing director of operations of MAS, on secondment from Overseas Union Bank.

Mr Ng, who is now the group chief investment officer of the Government of Singapore Investment Corporation, recalls the first meetings with the CME, which had also explored partnering the Tokyo and Hong Kong exchanges. "They came to Singapore and met up with Ho Kee and me and (Koh) Beng Seng," he says. "We showed a great deal of interest and said: 'Look, can we move very quickly on this?' We were telling them we were prepared in Singapore to even go to the extent of crafting legislation to govern gold and financial futures in a way which will be up to the standards of US legislation. That appealed a lot to them. They looked around and said: 'Well, this is a serious place.'"

Mr Lim recalls that then-MAS chairman Dr Goh Keng Swee initially retorted that such an exchange would be "a casino".[9] But he and Mr Ng persisted and pushed the idea through, at the risk of losing their own jobs. Mr Lim recalls: "The late Mr Lim Kim San, who was my boss then, looked at me and said, 'If it goes wrong, you are responsible.' And I said, 'No problem, sir.'" Mr Ng also had to persuade the Gold Exchange of Singapore (GES) board of directors to go with the CME. "[CME] were very, very severe in their demands – the kind of credit assurance that we had to give them. Quite a number of my board members felt we were being sort of abused, that we were being blackmailed into doing certain things," Mr Ng recalls. "But I kept my mind. I said: 'Look, I'm very clear this is the way to go.' And I trusted Leo (Melamed) and his people that they will be reasonable."

In June 1982, Mr Lim and Mr Ng flew to Chicago to gather opinions, study the regulatory system and auditing methods, and to secure the CME's cooperation in setting up a joint futures market. "The one-on-one conversation that I had with Lim led me to believe that maybe we could go all the way," wrote Mr Melamed in his book *Escape to the Futures*.[10] "He convinced me that if the Merc (Chicago Mercantile Exchange) was ever going to take the revolutionary plunge with a Far Eastern partner, this was the time to do it and they were the people to do it with." Subsequent meetings between the Chicago and Singapore officials followed, and by the time both parties lifted their heads from the drawing board, a novel and unprecedented "mutual offset" system had emerged.

Under the system, the first global round-the-clock futures trading platform, a trader who bought a Eurodollar contract in Singapore could offset it by selling on the CME or vice versa. Market users in Asia would have access to two markets to do their trading but would be obliged to deal with only one exchange in Singapore for the paperwork relating to accounts, reports and margin settlements. The offset was touted as a novel means of eliminating overnight risks, reducing transaction costs and bridging the 13-hour time gap between the two cities.

Top: Finance Minister Hon Sui Sen officiated at the opening of the Stock Exchange of Singapore (SES) by unveiling a commemorative plaque on 17 June 1973. Above: New computerised electronic boards were introduced at the Stock Exchange of Singapore in 1982.

The Stock Exchange of Singapore's new trading floor at OUB Centre was opened in 1988.

Equity market

The Stock Exchange of Singapore (SES) began operations in 1973, after separating from its Malaysian counterpart. SES focused on building and upgrading its trading infrastructure so as to increase its attractiveness as a listing destination. It introduced trading on a settlement basis – meaning that traders could buy today but settle the transaction later. This boosted trading interest tremendously and gave greater breadth and liquidity to the market, even though it also allowed for the practice of "contra" trades (buying and selling within the settlement period), the risks of which were subsequently exposed in a crisis that developed around a company called Pan-Electric Industries in 1985 (*see chapter 8*). In 1977, a limited form of options trading was introduced, making Singapore the first financial centre in Asia to have an organised options trading market. SES was eventually admitted to the International Federation of Stock Exchanges in 1980, reflecting true acceptance around the world of the exchange's size and professionalism. But the culmination of a successful first decade for the SES was marked by a more fundamental and daring change in 1982. The exchange replaced the traditional white boards seen on exchange floors all around the world with an electronic trading board. With this, price quotes for

stocks could be put up through computer terminals and stockbrokers could receive the information through a network of computer terminals in their offices.

By the 1990s, SES had evolved into a modern and well-regulated market for capital raising in the region, with listings from countries such as Malaysia, Indonesia and Hong Kong. But it was starting to face increased competition from both new and old competitors with far larger economies. In order to stay competitive, MAS and SES both decided that it was imperative that the exchange equip itself with one of the most efficient and transparent trading and settlement systems in the region. The orientation of SES also had to turn outwards, out of necessity. "Given Singapore's size with its limited resources, the number of companies that could potentially be listed on SES was not encouraging. For SES to grow it had to look beyond Singapore," says Mr Lim Choo Peng, former SES president.[11] "Setting this objective was easy but achieving it with any success was a long and difficult process. Companies, especially foreign companies, would be attracted to SES only if it had sound regulations and proper disclosure policies that were adequately and fairly enforced. The market also had to be liquid and trading efficient, so as to minimise transaction costs."

In 1997, as part of MAS' comprehensive review of Singapore's financial sector, the government re-looked the organisational and regulatory structure of the capital markets. Two private sector committees – the Corporate Finance Committee and SES Review Committee – were tasked to develop strategies to broaden and deepen Singapore's equity and derivatives markets. In addition, MAS ran internal reviews of sectors such as fund management and the debt capital markets. The aim was to position Singapore as a leading capital market in Asia after the region recovered from its financial crisis. This meant fostering vibrancy not just in the "sell-side" area of corporate financiers, brokerages and exchanges, but also among "buy-side" fund managers and sophisticated investors.

The review came at a time when globalisation and technological advances were changing the game not just for issuers of capital and intermediaries such as stock exchanges and brokerages, but also for investors. National barriers were dissolving. Companies no longer looked merely to their own domestic markets and players to raise capital. Instead, institutions set their sights on raising funds in the most liquid global markets around the world with the best aggregations of investors. Intermediaries like corporate financiers and brokerages competed on the

Traders in the SIMEX trading pit.

basis of global reach. Investors also vied with each other to snag the most attractive investments around the world, and many could do so in almost any major global market from the comfort of their own homes or offices. "Increasingly, we operate in a single, almost homogenous, global market," concluded Ms Yeo Lian Sim, a former deputy managing director of MAS, in a speech in 2001.[12]

Since issuers and investors were moving to markets that provided the greatest liquidity and best execution, MAS decided that a merger of SES and SIMEX would make the combined entity more competitive by offering a better size and product range. With the differences between securities and derivative products starting to blur, a merger would also be able to align securities and derivatives business strategies more closely and allow new players that dealt in both spheres to see cost and customer advantages.[13] Meanwhile, it was also decided that the new integrated entity would be a for-profit, privately-held stock company with a single pool of owners at the holding company level, and that the new entity should also aim for a public listing within five years, providing an added incentive for owners to ensure its success.

In November 1998, the merger process kicked off to form what is today the Singapore Exchange (SGX). In 1999, SGX launched its two trading arms, SGX-Securities Trading and SGX-Derivatives Trading, followed shortly by SGX's listing on its own main board in 2000. Since then, SGX has attracted more than 300 international listings from over 20 different countries, becoming a premier centre in Asia for capital raising and hedging of investments. It has broadened its product offerings to include warrants, options, exchange traded funds (ETFs), global depository receipts, real estate investments, business trusts and commodities, and also introduced new services such as extended settlement and securities borrowing and lending.

In the years following the merger of the exchanges, MAS introduced other initiatives designed to spur interest in the equity market. The updating of MAS Notice 757 in August 1998, for example, made it easier for foreign companies to list their shares in Singapore dollars on the local bourse. In a separate move, foreign firms with only 20 per cent of their revenues, profits or expenses attributable to Singapore were now allowed to list Singapore dollar-denominated shares on SGX, where previously they could only do so if they had operational headquarter status, with at least 35 per cent of their revenues, profits and expenses generated in Singapore. This paved the way for SGX to attract many more foreign listings in the years to come.

Today, MAS' regulatory framework even allows for other exchanges to enter Singapore's capital markets, provided they are well-regulated and run in an orderly manner. Singapore is already home to a second competing exchange, the Singapore Mercantile Exchange (SMX), which obtained approval in 2010 to operate here. SMX is a pan-Asian multi-product commodity and currency derivatives exchange that offers a diversified basket of commodities investments including futures and options contracts on precious metals, base metals, agriculture commodities, energy, currencies and indices.

Debt market

The equity markets may have been growing in depth and sophistication since the 1990s, but Singapore's debt market remained under-developed until the last decade. The Singapore government, typically in a net budget surplus position, had no need

Mr Lee Hsien Loong (left) and Mr J Y Pillay (right), chairman of the Singapore Exchange, insert two small globes on stage to signify the inauguration of the Singapore Exchange in 1999.

to issue government debt. Companies in Singapore were also generally cash-rich, and if they needed funds they would either go to the banks or to the equity market. This started to change in 1997, when MAS embarked on a comprehensive effort to develop the market as part of its broad financial sector review. Mr Lee Hsien Loong, who was to become MAS chairman, envisioned Singapore developing a strong bond market as part of its financial sector reforms. As he said in 1998: "I think there is some potential in the bond market because even from the Singapore government's point of view, it makes sense for us to fund some of our infrastructure by borrowing from the market – if we can get good rates, instead of funding from budget surpluses."[14] Mr Lee, who is now prime minister, added that the regional turmoil during the Asian financial crisis had also shown how an over-dependence on the banking system could exacerbate problems for borrowers. Singapore's banking system was sound and financial institutions here survived the crisis relatively unscathed, but having a deep and liquid bond market would offer borrowers the flexibility to diversify their

sources of funding and provide them with a good alternative source to raising long-term capital to match long-term expenditure needs.

In designing a bond market development programme, MAS focused on three principal areas: building a liquid government benchmark yield curve that would act as a price discovery mechanism for issuers and investors; fostering growth of an active secondary market that ensured sufficient liquidity for investors to access and exit the market according to their requirements; and encouraging issuers and investors, both domestic and international, to participate in the bond market.[15] The three thrusts reinforced one another. Active trading, for example, would increase liquidity and depth, making yield levels more robust and less prone to "gapping". That would help draw more participants into the market, which would, in turn, raise the level of trading activity.

In 1998, MAS issued not only more Singapore Government Securities (SGS), but also launched the first 10-year government bond issue to extend the yield curve beyond seven years. MAS also provided an SGS issuance calendar that showed which bond tenor would be auctioned each month. Meanwhile, regulations surrounding Singapore dollar interest rate derivatives were liberalised to enable market participants to better manage interest rate risks arising from investing in the SGS market. To facilitate more active trading of SGS, MAS also established a repurchase agreement ("repo") facility to support the market-making activities of primary dealers and made the SGS market more accessible to the investing public.

To develop the corporate bond market, a two-pronged approach was adopted. The first prong was to encourage statutory boards and government-linked corporations to tap the bond markets for their funding needs. This would diversify their sources of funding and reduce their dependence on borrowing from the government or banks. Since then, many agencies and institutions have raised capital through the bond markets. As the demand for longer-term bonds grew, the Land Transport Authority issued a 20-year bond in 2003, extending the yield curve beyond the maximum 15-year tenure for SGS. In 2010, government-linked investment company Temasek Holdings issued a benchmark S$1 billion 40-year bond, the longest bond tenor issued in Singapore dollars to date.

The second prong was to open up the Singapore dollar bond market to foreign issuers. To encourage more foreign entities to tap the Singapore dollar bond market, the policy of non-internationalisation of the Singapore dollar was relaxed in August 1998. In particular, foreign entities could now issue corporate bonds to meet their funding needs, provided the proceeds were converted or swapped into a foreign currency before being remitted abroad. MAS initially allowed only foreign entities with good credit standing to issue bonds, but this rule was amended in November 1999 to allow all rated foreign corporations and all sovereigns, rated or unrated, to tap the bond market. Unrated foreign corporations were allowed into the market, as long as the investor base was restricted to sophisticated investors.

With the development of the corporate bond market came the need for MAS to create a vibrant Singapore dollar swap market. One of the most significant measures to boost the swap market was MAS' decision in 1999 to exempt banks from setting aside reserves for Singapore dollars received from non-bank customers through foreign currency swaps of at least one year in maturity. This promoted more competitive pricing and boosted liquidity in the long-term swap market. The exemption was relaxed further in March 2001, with banks no longer needing to set aside reserves even for Singapore dollar swap transactions of less than one year in maturity.

Asset management

Given the growth in segments as diverse as offshore banking, foreign exchange and the capital markets, MAS turned towards developing Singapore into an asset management hub in Asia. It started actively promoting asset management in the early 1990s but even though the industry had grown strongly by 1998, it still managed only a small fraction of money either sourced from Asia or invested in Asia. In February that year, Mr Lee Hsien Loong announced new plans to develop Singapore into a premier asset management hub in Asia over the next five to ten years.[16] The vision was two-fold: first, for more global fund managers to set up offices in Singapore and use it as a base to invest in Asia; and second, for Asian investors to use Singapore as a base to diversify out of Asia and into the more developed markets of the world.

The first part of the vision required MAS to deepen and widen Singapore's capital markets so that global investors would have the instruments with which to gain Asian exposure across a wide range of asset classes. This was already work

in progress, with SGX broadening its product offerings in the equities and futures markets, as well as the development of an international debt market in Singapore. The second part depended to some extent on the success of the first. If Singapore could attract a large enough concentration of asset management companies and professionals, Asian investors would see Singapore as a convenient base in their own time zone for global investments. But "institutional and policy weaknesses" had kept Singapore from realising its full potential, said Mr Lee. To overcome this, MAS first streamlined regulations to make it easier for fund managers to both enter the market and distribute their products. But prudential standards were not to be compromised. MAS maintained strict requirements on new entrants' track records and the professional experience of its principal officers. It also stepped up supervision of fund managers and inspected them more regularly on-site. At the same time, MAS quickened the processing of approvals for unit trusts and other asset management products and allowed them to be sold by banks and other local distributors, so that a greater variety of investment products would reach more segments of the market.

To kickstart the growth of the asset management industry, MAS recognised that a sizeable core of domestic funds was needed to attract major international players. A large portion of the savings of Singaporeans was kept in their CPF accounts, but up to 1998, only a small amount of this had been placed in unit trusts and other fund management accounts. In consultation with MAS, the CPF Board liberalised the rules of the CPF Investment Scheme (CPFIS) and approved the entry of more CPFIS fund managers. Disclosure standards were also raised to ensure that CPF members could make informed choices about their investments and receive regular updates on the performance of their portfolios.

To further increase the core of domestic funds that could be invested with the growing asset management industry, MAS' placed out some of the funds that both it and the Government of Singapore Investment Corporation (GIC) managed as part of the nation's reserves. This seed money, US$35 billion from GIC and US$10 billion from MAS, would be given only to fund managers "of good proven track record and who show commitment to developing the asset management industry in Singapore".[17] These funds would encourage existing asset management companies to continue to grow in their operations as well as attract other asset management companies to set up offices in Singapore. The increase in the critical mass of investors also meant more business for the various financial services that Singapore offered.

Finally, a growing number of "boutique" fund managers started making their home in Singapore. These were either fledgling local firms with great growth potential or small international firms started by investment professionals who preferred the flexibility and relative freedom of running a small independent outfit with fewer clients. Recognising that Singapore's asset management sector would greatly benefit from the presence of these talented individuals, MAS devised a special licensing scheme in March 1999 for these boutique fund managers (BFM) serving only accredited investors. The BFM scheme has since spurred the emergence of more independent fund managers in Singapore. The asset management industry has grown from S$18 billion in assets managed in 1990 to reach S$1.4 trillion by end 2010.

Sound regulation as a basis for development

While highly motivated to ensure the financial sector's success, MAS was always mindful to develop it within the framework of a sound and effective regulatory system. When the ADM was set up, the domestic banking sector was insulated from ACU transactions through the use of two regulatory distinctions – the difference between resident and non-resident funds, and between Singapore dollar and non-Singapore dollar transactions. The resident and non-resident distinction meant that Singapore residents were not permitted to transact with ACUs, even in foreign currencies. This restriction was eventually removed with the complete liberalisation of exchange controls in 1978. As a consequence of Singapore's removal of exchange controls, the scope of operations of ACUs was widened to include more banking transactions and fee-based activities. ACUs could collect deposits in foreign currencies from Singapore residents without any limit or restrictions. Loans in all foreign currencies could also be made by ACUs to Singapore residents without prior exchange control approval.

In the early years, MAS had to maintain strict regulatory standards without stifling the market's growth. In order to have wider surveillance and supervision of the foreign exchange market, MAS announced in 1974 a requirement for authorised banks to submit supplementary returns to show fuller details of their foreign

exchange forward positions, as well as the exchange positions and exposure of their ACU operations. It also called for high standards of ethics and market practices in the foreign exchange market, establishing together with the banking and broking community the Foreign Exchange and Money Market Practices Committee in 1974. The committee met regularly to review industry developments, market practices and standards of professionalism. It has since been replaced by the Singapore Foreign Exchange Market Committee, formed in 1986, which promotes high standards of professional conduct and competencies, and produces the "Singapore Guide to Conduct & Market Practices for Treasury Activities", also known as the "Blue Book".

In addition, MAS moved quickly to forestall any potential new problems that could arise in the fast-paced foreign exchange arena. For example, leveraged foreign exchange trading activities, which involved the buying and selling of foreign exchange on a margin or leveraged basis, grew quickly in the early 1990s. These activities were not subject to any regulation in the past and there had been growing complaints from customers of these foreign exchange trading firms concerning their professionalism and integrity. To protect the interests of investors who participate in leveraged foreign exchange trading, MAS moved to license these firms as futures brokers under the Futures Trading Act (streamlined since under the Securities and Futures Act). The new licensing requirements raised the standards in the leveraged foreign exchange industry by ensuring that persons conducting such business have the relevant experience, qualifications and professionalism.

Similarly, in the banking sector, MAS has sought from the beginning to attract only reputable and financially sound international financial institutions that are properly supervised by their home authorities to set up operations here. This selective admission criteria remains a cornerstone of MAS' policy. Banks are also expected to appoint high-calibre management to oversee sound credit and risk management policies and effective internal controls.

While MAS facilitated the setting up of SIMEX as an international futures market, SIMEX was warned in no uncertain terms that it was expected to manage its affairs in a way that would command the long-term confidence of participants. In the context of a futures exchange, this meant high credit standards and professional conduct must never be compromised by any effort to develop trading interest and liquidity. In view of the systemic risk such institutions could pose to the financial

sector, a "common bond" system was adopted. Under it, all corporate clearing members became collectively responsible for each other's actions. They were held jointly and severally liable for the obligations of the SIMEX clearing house, which served as the middleman between buyers and sellers. The addition of the common bond strengthened SIMEX and ensured that clearing firms constantly monitored the risks in the system. It also provided SIMEX customers a healthy measure of confidence, essential also for the mutual offset system with the CME to work.

But that was not all. SIMEX was set up with a whole host of other measures designed to ensure that the futures market operated in a way in which integrity, financial soundness and proper business conduct were maintained. First, clearing members were required to collect margins from clients and from the clearers themselves. As a precautionary measure, margins had to be liquid, that is, easily convertible into cash and deposited with a SIMEX member firm soon after a trading position was taken. Margins were also calculated on the basis of gross, and not net, trading positions. Second, rules were set up to ensure that customers' funds and properties were segregated so that these funds were always the legal property of the customers and could be used only to effect their trades. Third, SIMEX built up a supervision capability to help ensure credit worthiness among clearing members by adopting the same audit, compliance and market surveillance procedures which made the CME a sound market. Importantly, all outstanding positions were "marked-to-market" everyday using SIMEX's closing prices of the day, and all losses had to be made good in cash before trading began the following day.

The strict margin requirements of SIMEX paid off. In 1995, a SIMEX trader, Mr Nick Leeson of Barings, speculated excessively in Nikkei index futures and brought down the venerable London bank with losses of US$1.4 billion. This was an internationally high-profile case that spawned plenty of news headlines, but SIMEX managed to weather both the financial and reputational fallout. The margins deposited by Barings provided SIMEX with ample funds to meet the costs incurred in liquidating Mr Leeson's open positions. In fact, SIMEX won praise for the integrity of its margining system and its efficient liquidation of Barings' proprietary positions. SIMEX survived the Barings incident without tarnishing its reputation and, in many ways, emerged with an even stronger brand name.

Opening up the banking industry

Another issue that MAS has had to grapple with over the decades has been the speed and extent to which the local domestic market should be opened up to participation from foreign banks and financial institutions. As a former British colony, Singapore had its banking scene dominated by foreign banks in the early days. Local banks were small and played a supporting role in the economy. Over time, the local banks consolidated into a smaller number of larger banks, but needed some protection to compete with the influx of foreign banks. Given the openness and small size of Singapore's economy, foreign bank dominance of the banking market could destabilise the domestic sector, especially if foreign banks withdrew from or reduced their operations in Singapore on instructions from their head offices. Local banks, on the other hand, could be counted on to remain more rooted in Singapore, so it was important that they were not wiped out by excessive competition in the domestic economy.

Hence, for almost 30 years after it was set up, MAS issued restricted and offshore banking licences to well-managed foreign banks. In fact, Dr Goh Keng Swee told parliament in 1970 that the "policy is to decline new applications for bank licences except in exceptional cases". Meanwhile, foreign banks that already had existing full licences were limited in expanding their domestic retail presence freely. They were not allowed to set up new branches or re-locate existing branches, install "off-premise" automated teller machines (standalone ATMs located away from bank branches), share ATMs with other banks or offer Electronic Funds Transfer at Point-of-Sale (EFTPOS) services.

There were also restrictions on the total shareholding that foreign investors were allowed to hold in local banks. Starting in the early 1990s, however, the global banking landscape started to see trends towards consolidation and financial liberalisation. Due in part to advances in telecommunications and technology, markets were becoming increasingly globalised and this led to increased competition across national borders. The financial industry worldwide pushed towards ever quicker, cheaper and more efficient financial systems. As a result, a wave of mergers, acquisitions and corporate restructurings swept through financial institutions in the US, Europe and Japan. International banks sought to boost their capital strength and position themselves for foreign competition.

MAS recognised that while Singapore needed robust local banks that could compete effectively against leading international banks, it would also benefit from strong foreign banks taking a stake in its financial system. Levelling the playing field for foreign institutions did not necessarily mean less business for local institutions, it argued. At the same time, more foreign competition would push local institutions to upgrade themselves, offer better services and become more efficient. Improved technologies had already led financial institutions to introduce new products and techniques to arbitrage markets and manage risk, as well as tap on new distribution channels like online banking. The reality was that if local banks did not embrace the emerging landscape, it would be Singapore's loss. Minister for Trade and Industry and deputy chairman of MAS Lim Hng Kiang, recalls: "Our concern then was that sooner or later, what we saw happening in the US particularly, the consolidation and the bulking up of financial institutions – and also beginning to happen in Europe – would obviously come to Asia. And we looked at our local banks, our local institutions. We were extremely vulnerable and therefore there was this sense of urgency that we should try and … strengthen ourselves and prepare ourselves for this onslaught."

MAS encouraged the local banks to grow in such a way that they could hold their own in the domestic market when it became more open and competitive. MAS therefore asked the local banks to consider mergers among themselves and made it clear that it would be supportive if they wished to bring in foreign equity partners as part of their business strategy. Local banks were also urged to relook their talent management policies and to try and attract the best professionals into their top jobs – not just Singaporeans, but talent from the region and around the world. As a result, Singapore banks began to fan out abroad, drawing on the world's best and attracting more international talent. "Liberalisation added a different dimension to Singapore's financial markets," says Mrs Theresa Foo, Standard Chartered Bank Singapore's first Singaporean chief executive.[18] "MAS also realised that foreign banks here, being much more global and international, could add value in terms of introducing innovative products and transferring product knowledge to Singapore from other cities they were operating in."

In May 1999, MAS announced the first phase of a five-year programme to open access to foreign banks and to strengthen the local banks through competition. Major changes included granting a new class of "qualifying full banks (QFBs)" enhanced privileges in setting up branches and off-site ATMs, and removing the 40 per cent foreign shareholding limit on local banks. The first QFB privileges were awarded to four foreign banks: ABN Amro Bank, Banque Nationale de Paris (now BNP Paribas), Citibank and Standard Chartered Bank. Several more restricted bank licences were also granted, and greater leeway was given to offshore banks to do Singapore dollar business. "Being one of the first four banks to be awarded QFB privileges in 1999 was a tremendous nod to our commitment to Singapore," recalls Ms Goh Siew Lian, then head of risk management and compliance for Citi Singapore's international personal banking business.[19] Ms Goh, now Citi Singapore's country compliance officer, observes that all banks, local or foreign, had to step up their game when the market became more open. This means, among other things, constantly investing in talent, technology, distribution and innovation to stand out from the competition. The result: stronger, sounder and more nimble financial institutions. "The liberalisation programme … is surely one of the most momentous milestones in the history of Singapore's banking industry," Ms Goh says. "It took foresight and courage to recognise that it would be competition, ultimately, that would spur the growth and development of the industry here. We grew our branch and ATM network extensively, pushed boundaries in innovation and broadened our customer reach to all segments of the population. We continue to do so."

Further measures to liberalise the banking sector were announced by MAS during the course of the next few years. Two more QFB licences were awarded to Maybank and HSBC Bank. QFBs were allowed to pool their ATMs in a shared network so as to provide more touch-points for domestic customers.

One important consideration in the whole exercise to liberalise the domestic banking sector was timing. "We had to ensure that there was enough time for the local banks to fortify themselves, prepare for a new era and not risk losing an anchor position in the domestic financial system," says Deputy Prime Minister Tharman Shanmugaratnam, who oversaw the liberalisation process directly as deputy managing director of MAS. "Having strong Singapore-rooted players at the core of our banking system was always an unstated priority. So banking liberalisation had to

Mr Lee Hsien Loong (centre) responds to a question at a press conference in 1999 to announce measures to liberalise commercial banking and upgrade local banks. On the left is Mr Koh Yong Guan and on the right is Mr Tharman Shanmugaratnam.

be phased in steps that were decisive enough to ensure the banks had to strengthen their capabilities but not so fast as to destabilise the system." United Overseas Bank chairman Wee Cho Yaw agrees. "My primary concern, in the earlier days, was that the open door policy should be a gradual process to ensure that the local banks have a fighting chance to compete effectively against the global financial giants," he says.[20] "I would say that MAS has generally been empathetic to the concerns of the local banks regarding the pace of liberalisation. The consolidation of the local banking sector has also enabled the Singapore banks to better withstand the pressures of liberalisation. I think we now have a more level playing field."

Eventually, Singapore's local banks heeded the call to merge. DBS Bank acquired the government-owned and operated POSBank in 1998. Shortly after that, OCBC Bank bought Keppel Capital Holdings, which had earlier acquired Tat Lee Bank. United Overseas Bank purchased Overseas Union Bank. When the dust settled, the number of local banks had consolidated from seven to three.

Looking back, Mr Tharman says the opening up of Singapore's banking sector worked. "The timing was right, and others have since moved in the same direction

in most parts of Asia," he says. "In retrospect, you can say, 'Well, perhaps we should have started earlier', but sometimes it takes a crisis for you to take a step back and think fundamentally about where you are. When things are going reasonably well, there is a tendency in all organisations and indeed countries to just coast along. And then when you finally realise you are losing your competitiveness, the rug has already been pulled from under you. We've ended up really in a 'plus-plus' situation where the local banks ended up stronger and the foreign banks have at the same time grown and strengthened their presence in Singapore."

The same arguments were in play when MAS, together with its private sector-led policy review committees, decided that there should be structural changes in Singapore's securities industry, most notably in the sell-side area of the exchanges and brokerages. Up to the late 1990s, the SES and SIMEX had been owned and run by member companies which restricted the entry of new players. Stockbrokers and dealers dictated the trading and listing rules and also set the level of commissions and fees charged. Looking back, Mr Lee Hsien Loong says it was not so hard, in principle, to liberalise this. "The stockbroking industry was a matter of, to put it bluntly, vested interest. We had created this. We wanted the protected market. We kept out foreign players; we kept the commission rates controlled and high," he says. "And the world had changed. It did not make sense for us to have the industry fragmented, to have the rates so high that it's money for jam. We had to open that up, but be fair to the players who were there because we had created this system and enabled them to be there." Among the significant changes that followed was the freeing up of stockbroking commissions, which had hitherto been "fixed" by the SES at roughly 1 per cent per transaction. They have since fallen to about one-third of that level. Another change was to let foreign players, including low-cost brokerages using Internet and other forms of electronic trading, enter the market freely.

But in order to effect these changes in the rules of the stock exchange, or any other that could potentially hurt the interests of the stockbroking industry, there was a need to first review the governance structure of SES and SIMEX. As long as the exchanges continued to be owned and run by its broker members, they would continue to place the interests of their shareholders above the wider objectives of the development of Singapore's securities industry and capital markets. Another committee – the Committee on the Governance of the Exchanges (CGE) – was set up to tackle this issue and subsequently recommended that SES and SIMEX be demutualised and merged. Demutualisation was a buzzword in global debates that raged at the time on the governance of exchanges. It referred to changing the ownership structure of an exchange from that of a mutual (i.e. owned by its members) to a private or even publicly-listed entity with a bigger and more diverse group of shareholders.

"It took us several steps before we concluded that we would demutualise and merge," said Mr Lee Hsien Loong in a 2001 interview.[21] "When we started off, we had never heard of the word demutualisation. But it became quite clear after our first study that minor adjustments within the existing mutual framework would not solve the problem. We had to change the whole governance structure." SES and SIMEX were demutualised and merged in 1998 and the combined entity was listed on the main board of the new SGX in 2000.

Conclusion

In 40 years, Singapore's financial centre has come a long way. "I would say that Singapore's success as a financial centre is due to the confluence of three basic elements – *tian shi*, *di li*, *ren he*," said United Overseas Bank's Mr Wee, alluding to the Chinese saying that the factors for success are time, place and people. Initially starting with little more than a domestically-oriented banking sector, the country has grown to become one of the largest banking and foreign exchange centres in the world, an internationally-recognised source for raising capital via debt or equity, and a vibrant hub for the trading of these instruments and other derivatives. But it has not simply been a case study in overcoming the limitations of size. The development of Singapore as a financial centre has required a holistic approach that built on prevailing and past successes and involved a whole swathe of policymakers working together, both from within and outside MAS.

It has also required the right balance to be struck between regulating the industry to minimise wrongdoing or failure; and giving its players the freedom to innovate and grow. It is a tension that is likely to continue to factor in policy decisions well into the future. Mr Heng Swee Keat puts it this way: "We have two potentially competing objectives, and what I found very important was to bring

them into alignment. You can keep a financial system very safe by doing very little in order to achieve the supervision objective. Or, you can develop a financial system very significantly but if you are not careful, it eventually collapses." He says MAS should not see the trade-off as between the twin objectives of development versus supervision, but rather as between the short term and the long term. "For either objective, we can easily achieve short-term success by focusing narrowly on just that one objective," he adds. "But to develop a system that is progressive and safe requires us to have a clear long-term strategy to achieve both objectives." Given the complexity and connectivity of today's markets, such a carefully-calibrated approach will be necessary to ensure that MAS continues to navigate a fast-changing environment skilfully and effectively.

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Eight

MANAGING CRISES

Over the last 40 years, the open and globally-connected economy and financial sector of Singapore have faced many challenges as a result of economic or political crises that have erupted elsewhere in the world. At home, Singapore's multi-faceted and fast-developing financial sector has occasionally thrown up problems of its own, the result of fraudulent transactions or poor corporate governance.

This chapter tells the stories behind four of those critical moments in the history of Singapore's financial sector. The crises are all different in origin and scope, but some common threads run through them. The first is that while MAS has always recognised that it would be impossible – and undesirable – to establish a crisis-free "zero failure" regime, a central bank or a financial regulator can do a lot to pre-empt a crisis and to minimise its impact if it does erupt. A second lesson that emerges is the importance of building up a solid, long-standing reputation of being able to put things right. In that sense, no crisis can really be seen in isolation, and policymakers should not act just to defuse a current problem, but also aim to maintain their long-term credibility as perceived by global financial markets. Finally, these examples demonstrate that in a crisis, a central bank or a financial regulator cannot simply reach for the instruction manual and follow the steps prescribed. MAS' experiences – whether they were late night faxes or tense meetings in rooms that stayed locked

until a solution was found – illustrate that MAS' success in crisis management can be attributed in large part to key officers who were able to hold steady and think on their feet, even in the face of enormous pressure.

1985: Pan-Electric Industries

Ask any investor about the biggest disaster in the history of Singapore's stock market, and chances are they will bring up the "Pan-El crisis". The failure of the Pan-Electric Industries (Pan-El) group in 1985 led to the Stock Exchange of Singapore (SES) closing for the first and only time in its history and nearly brought down the entire local stockbroking fraternity. It also caused grief to shareholders as the company's shares were popular among retail investors back then, and when the stock tanked due to the firm's financial difficulties, some shareholders saw their savings wiped out. What made the crisis even more memorable was the financial and political drama that unfolded alongside it. Founded in 1960, Pan-El was controlled by Mr Tan Koon Swan, who was then the president of the Malaysian Chinese Association, a political party in Malaysia that was part of the ruling coalition. Mr Tan was arrested and convicted for fraudulent dealings involving the company.

But if one strips away the sub-plots and asides, at the core of the Pan-El crisis lay the fundamental problem of an industry that was allowed too much supervisory freedom for far too long and lacked adequate regulation and oversight.[1] Since its inception in the 1970s, SES had regulated its own market. It was owned entirely by its members – all local stockbroking firms – who were regulated by an executive committee elected from the exchange's membership. Until the onset of the Pan-El crisis, there were no specific prudential regulations imposed on SES members. They were not subject to minimum capital requirements, gearing limits, limits on investments and exposure to asset classes, or margin and reserve fund requirements. Apart from the occasional surprise audit, there was also no surveillance or monitoring of members' operations, and the SES Committee was not obliged to submit returns to MAS. All this meant that neither the SES nor any regulator could keep track of the type and level of risk that stockbroking companies were exposed to. No one checked if the firms had adequate risk management systems in place.

Disaster finally arrived in late 1985 in the form of a product called the "forward contract". Simply put, a forward contract is an agreement to buy a company's shares at a certain date in the future, for a specific price agreed today. Like any futures contract, these instruments were used for hedging, allowing share owners to reduce the risk of holding long or short positions on the underlying shares for the duration of the contract. The practice of trading in forward contracts became widespread in the Singapore and Malaysian markets after their introduction in 1981. Without much scrutiny from regulators, these products led to dangerous over-trading of shares that multiplied the exposure of stockbrokers, companies, investors and banks to stock movements many times over.

In the case of the Pan-El crisis, many speculators had obtained loans from banks, pledging Pan-El shares as security for these loans. The undertaking, in a rising market, was to redeem the loan by a certain date when the shares were expected to be valued at a higher price. To reduce the risk of holding these Pan-El shares, a bank would enter into a forward contract with a broker, with the contract slated to mature on the same day that the loan taken by the speculator is due. This broker – who was trading on its own proprietary account – then entered into another forward contract with another broker at a slightly higher price or shorter settlement period, and the latter might start his own contract with another broker or investor. These multiple exposures to a single lot of pledged shares did not pose a problem as long as Pan-El shares continued rising, but the riskiness of these contracts became evident as share prices faltered towards the end of 1985 ahead of a sharp economic downturn. If share prices had collapsed at the point when the forward contracts that the stockbroking firms were involved in came due, there would be no market for these contracts. The contract holders would then be forced to settle these purchases, which in some cases amounted to the entire capitalisation of a company many times over.

Referring to the bewildering chain of forward contracts that was the mechanism through which Pan-El's collapse was able to affect others in the industry, Mr J Y Pillay, who was MAS' managing director at the time, says: "They kept changing hands and reached the stage where the brokerages said, 'Look, we do not know what is going on. We just don't have enough money to meet our obligations.'"

The real trouble began on 18 November 1985, when Pan-El defaulted on a S$7.5 million instalment for its own S$75 million syndicated loan led by Standard Chartered Bank. Its shares were immediately suspended and the company announced plans three days later for a rights issue of S$80 million to S$95 million to raise more capital. But when the underwriters of the rights issue took a closer look at Pan-El's books, they discovered that Pan-El in fact owed S$453 million to 35 banks. The rights issue was subsequently cancelled. A few days later, Pan-El unveiled a rescue plan to improve its position, supposedly with the backing of the creditor banks. Apart from a fresh S$200 million in equity and rights issues, Mr Tan Koon Swan pledged to pump in S$40 million in the form of an interest-free loan. But legal complications disallowed Mr Tan from drawing this money from another related company, Sigma International. With Mr Tan unable to come up with the money himself and no options left on the table, Pan-El went into receivership on 30 November.

At the time of its collapse, Pan-El and its subsidiaries were themselves committed to about S$160 million of forward contracts, all of which were in default and had to be unwound. Local stockbrokers hit by losses on Pan-El were now in danger of defaulting on other forward contracts which they had entered into. As at 29 November, the value of forward contracts outstanding was some S$600 million. At the same time, total bank loans to the stockbroking industry stood at S$1.06 billion. With only S$200 million in combined capital, the entire industry was in over its head, and faced the very real risk of a complete financial meltdown.

The SES Committee had no choice, therefore, but to approach MAS with a proposal to indefinitely suspend all trading on the SES. "It was a difficult decision. There were people not agreeable to market closure," recalls former SES president Lim Choo Peng.[2] Even though it was unprecedented and would tarnish the reputation of Singapore's capital markets, MAS told the committee that it had no objections to the closure. From the contagion viewpoint, the closure averted further defaults on futures contracts that would have plunged more stockbroking firms into insolvency. The closure of the SES would also give the parties concerned time to work out a short-term strategy to tackle the crisis, and time to work out a suitable long-term plan of action.

On 2 December 1985, all trading on the exchange was suspended. According to Mr Pillay, MAS' primary objective was to avert systemic failure of the securities industry, even though it was not seen as such at the time. "Some people perceived the closure as an attempt to halt the slide in the stock index. But that was never in our mind, (we were) not interested in the index, not much," recalls Mr Pillay. "We didn't prepare any paper because we had to do it in a hurry … As you say, 'with a prayer in your mouth', because it was something so extraordinary. The market had never been closed before, not even for a day or even for an hour. And here we were closing it for three days because it would take us that long to stabilise the industry. Immediately after we made the announcement, I got a call from the Bank Negara Malaysia governor, Mr Ismail Ali. Mr Ismail said, 'What! You are closing the exchange!' I said, 'What to do?' Before we knew it, they had closed the exchange as well."

A Supervisory Committee was set up immediately, comprising Mr Pillay; Mr Koh Beng Seng, deputy managing director of MAS' banking and financial institutions group; three representatives from the SES; and one representative from each of Singapore's "Big Four" local banks – DBS, United Overseas Bank, OCBC and Overseas Union Bank. Working round the clock, MAS officials, led by Mr Koh, arranged with the four banks an emergency "lifeboat" fund of S$180 million to rescue the stockbrokers. The money from this fund would go towards bailing out stockbroking firms that were in temporary financial difficulties due to excessive margin calls and unusually low share prices. What the lifeboat would not pay for was any rescue of stockbroking firms suffering from more permanent credit problems as a result of over-exposure to forward contracts and other bad trading practices. There was a "no zero failure" policy in place, meaning that the stockbroking firms whose risk management practices were markedly poor would be allowed to go under.

Although the plan was quickly formed, it did not win the support of local stockbrokers, some of whom were determined to wring concessions so that any bailout would not come at the expense of a huge dent to their capital base. Stockbrokers were also unhappy about having to contribute a new levy, based on the commissions they earned from trades, to a sinking fund that would go towards repaying any drawdown on the lifeboat fund. They were aggrieved that the levy would apply to all firms

Trading of shares was suspended for three days in December 1985 in the wake of the Pan-El crisis.

regardless of their exposure to Pan-El and to forward contracts in general. This raised complaints of inequity, as more prudent stockbroking firms felt they were being financially penalised for the recklessness of their less well-managed counterparts.

There was little time for such haggling and most of the stockbrokers had taken loans from foreign banks, which had to be repaid. MAS also had to address the concerns of institutional investors and the general public, following the market closure. Mr Koh recalls that tense Monday night, when he summoned the local stockbrokers and met with them until well past midnight in his office. Before that, he had placed a call to Singapore's then-finance minister, Dr Richard Hu. "I said: 'I think we need to work out something and I need to be very tough, very rough with them to get a solution.' Dr Hu said, 'Go ahead.'" The meeting lived up to its billing, says Mr Koh. With an army of journalists camped at the lobby of the MAS Building, Mr Koh even resorted to locking the doors of his department on the 22nd floor. "I said, 'No one can go back. I will stay until we settle on a solution one way or the other.'"

An agreement was eventually hammered out in the early morning of 3 December, and the workings of the lifeboat fund were formally announced later

that day. The Big Four local banks would extend a S$180 million credit line to stockbroking firms, and in return a 0.25 per cent commission on every share deal would go into a contingency fund to repay future borrowings from the credit line. Any firm utilising the S$180 million credit line would be subject to stringent conditions. For one, firms intending to draw on the fund had to prove their viability, which meant that their outstanding debts could not exceed S$10 million. MAS also called on banks to observe a three-month moratorium on loans to stockbrokers to avoid consequent losses for banks themselves. Because of the moratorium, stockbrokers were able to substantially reduce both the amount they borrowed from banks as well as the number of forward contracts in the system.

The lifeboat helped to restore investor confidence in the SES, but MAS still treaded with extreme caution. After markets reopened on 5 December, all share deals had to be conducted on an immediate delivery basis, meaning that payment had to be made within 24 hours of a trade. Trading on a settlement basis (payment within a month) was suspended indefinitely, while forward trading (payment more than a month later) was completely banned. This settlement period was subsequently changed to five days (T+5) on 6 January 1986 after some overseas clients complained about difficulties in fulfilling the 24-hour delivery rule. Presently, the settlement cycle is on a T+3 basis. As part of the reforms following the crisis, the by-laws of the SES were amended to facilitate the corporatisation of members. These amendments also allowed the Big Four local banks to enter the stockbroking industry, boosting the low capital base of stockbroking firms. In addition, foreign participation in the SES member companies was permitted.

The Securities Industry Act was also revised to strengthen the prudential requirements of stockbroking firms, with the aim of achieving a proper balance of prudential control and self-regulation. The changes were long overdue. In fact, when MAS took over the administration of the Securities Industry Act in late 1984, it had already found the system of self-regulation at SES unsatisfactory. By early 1985, a new bill had been drafted to provide MAS with the supervisory powers it considered necessary, but these proposals met with strong opposition from SES members. Stockbroking members argued that they did not want too much regulation and control because it could render the Singapore market uncompetitive compared with the rival exchanges in the region. "In the early days, the brokers felt that it was

important to have self-regulation, because at that time, most of the exchanges in the world were self-regulated, and that was the benchmark we followed," explains Mr Lim Hua Min, chairman of Phillip Securities and a member of the Supervisory Committee.[3] As it was MAS' practice to allow ample opportunity for all those who would be affected by legislative changes to have their views heard and considered, the bill was deferred pending further consultation with SES. But even before the new bill could be finalised, the Pan-El crisis laid bare the system's weaknesses in dramatic fashion.

With tighter regulations finally put in place, including fresh capital and new expertise brought in to strengthen and improve the market, SES withstood the Black Monday global stock market crash on 19 October 1987 with greater steadiness. Although one or two firms stumbled, there was no systemic risk to the financial sector.

The Pan-El crisis was a lesson on the importance of vigilant regulation and good corporate governance. The latter was severely lacking in the case of Pan-El, as illustrated by Mr Tan's leeway to make large-value forward deals using company funds. Better risk management should also have been in place in the form of supervision by a regulator. Pan-El and the stockbroking industry were not at the time directly under MAS' regulation, but SES, as the regulator of member stockbroking firms, should have stopped firms from facilitating the enormous amount of forward contracts into which Pan-El entered.

On a broader front, Pan-El's severe lack of liquidity should have triggered an early warning signal to either its management or the authorities regarding the company's weak financial health. In view of Pan-El's rapidly deteriorating financial condition, banks should not have continued to lend indiscriminately to the company. The crisis led to severe pain and losses for the broking industry, but it was also a blessing in disguise, says Mr Lim Choo Peng. "It opened the eyes of everybody. It brought up a lot of good things – proper regulation as well as the changing structure of the exchange from broker-managed to more outside representation. At the end of the day, this led to something much better."

1995: Barings Bank

The 1995 collapse of Britain's oldest merchant bank, Barings, offers an insight into the potential impact of the failure of one of the hundreds of foreign financial institutions that do business daily in Singapore. The bank's collapse stemmed mainly from the activities of one Nick Leeson, then-general manager of Barings Futures (Singapore), or BFS. Mr Leeson ran up huge losses on massive futures positions when the market in Japan went against his bets. He covered up the red ink by using a false trading account numbered 88888, concealing trades from the Singapore International Monetary Exchange (SIMEX). Thereafter, Mr Leeson engaged, on a rapidly increasing scale, in unauthorised trading in futures and options through this account, betting progressively more to try and win back his earlier losses. His unauthorised trading activities intensified until eventually the spiralling debts he chalked up caused the 240-year-old bank to collapse under losses totalling a staggering US$1.4 billion.

SIMEX dealt swiftly and effectively with the problems created by Barings' high-risk trading activity. The open positions in BFS' books were transferred within a week of Mr Leeson failing to meet his margin calls, with minimum disruption to the market. In the end, investigations showed that the fault lay with Barings London. It was a combination of poor judgement and a failure of internal controls by a bank that should have been aware of what Mr Leeson had been doing. Still, in the wake of the Barings debacle, SIMEX and MAS began working towards more effective regulation and greater information sharing among regulators and exchanges. The rules of business conduct on SIMEX were reviewed to enhance the monitoring of risk exposure, while a global panel of experts was formed to advise the exchange on the best practices in the futures industry.

The Barings drama started on Thursday, 23 February 1995, when the bank's deputy chairman Mr Andrew Tuckey in London received a call from Barings' Singapore office reporting that a dealer had run up massive losses on derivatives trades. Mr Leeson could not be contacted, having fled to Malaysia with his wife that same evening. BFS officials conducted more checks and by Friday they had discovered the fraudulent 88888 account. The Bank of England became involved and quickly put together a crisis team that was given until Sunday midnight British time – when the Tokyo stock markets would reopen – to persuade British and foreign banks to

launch a lifeboat to keep Barings afloat. Fortunately, news of the impending disaster did not leak out to the public on Friday, so financial markets were not disrupted.

MAS was immediately alerted to the losses. The weekend saw a flurry of meetings between SIMEX's executive committee and MAS to formulate the emergency actions that needed to be taken when the market reopened on Monday. Meanwhile, SIMEX clearing house officials were busy trying to determine the precise extent of the exchange's exposure to Barings. Investigations carried on through the weekend in both Britain and Singapore. Over in London, frantic, round-the-clock meetings took place while specialists with expertise in the complex financial derivatives markets were called in to try to make sense of the losses.

On Sunday, efforts to find a buyer for Barings before the Tokyo market reopened failed and Barings officially went bust. Thankfully, MAS officials had by then determined that Barings' problems in Singapore were confined to only its futures unit. Barings' two other units here – its merchant banking arm and stockbroking house – were not affected by the losses. MAS had earlier required Barings to trade futures in an entity separate from its merchant banking arm and report directly to Barings London. As a result, the bulk of Leeson's trades had been done for the accounts of Baring Securities (London) and Baring Securities (Tokyo). There was thus no systemic threat to the financial sector in Singapore. BFS was not a bank and did not take in retail deposits.

Dr Hu recalls: "When Barings happened, of course, Koh Beng Seng and his team were very quick to act. They went immediately to Barings, took the books and discovered how the sequence of events took place. And it was very clear. Leeson was mainly speculating in Nikkei-225 futures and reporting profits which did not exist. As far as the home office was concerned, this unit in Singapore was making money and they provided more funding to increase the size of its business."

In consultation with MAS, SIMEX swung into damage control on Monday, 27 February, when markets reopened. To ensure that market players continued to have confidence in SIMEX trades, the exchange doubled trading margins, requiring traders to put up more cash upfront. In a publicly-released statement, SIMEX also said it had taken over the management of all BFS' open positions and was satisfied the margins that it held in relation to the open positions were adequate to cover anticipated price movements. When BFS' related party customers failed to meet margins calls on Monday, SIMEX applied to the court to appoint judicial managers to ensure the orderly settlement of BFS' liabilities.

But SIMEX's announcement to substantially increase margin deposits was unfortunately read the wrong way. Instead of seeing it as a cautionary prudential move, major US futures commission merchants (FCMs) took it as a signal that SIMEX, the key counterparty to the traders of the Chicago Mercantile Exchange (CME), might be short of funds. Ms Mary Schapiro, then chairman of the Commodity Futures Trading Commission (CFTC), woke Mr Koh with a phone call in the wee hours of Tuesday morning in Singapore to convey these fears. She told him that the FCMs wanted written assurance from MAS before the Singapore markets opened on Tuesday that the additional margin deposits imposed by SIMEX would not be used to meet BFS' liabilities. Ms Shapiro added that if the written assurance was not given, the FCMs would not remit funds and the mutual offset link that SIMEX had with the CME would be broken. On hearing this, Mr Koh headed instantly to SIMEX to address the situation, stopping only to brush his teeth.

At SIMEX, Mr Koh entered into a conference call with US officials, after which he immediately drafted the statement assuring FCMs that their margin deposits at SIMEX were secure. "It was 3 am in the morning. MAS and not SIMEX had to guarantee what money that came in would not be used to settle the Barings losses," recalls Mr Koh animatedly. "The choice was that if MAS didn't sign, and at that time [the US] market was about to close … SIMEX would be finished. I signed [the statement], faxed [and] morning came. We survived." Former SIMEX president Mr Ang Swee Tian, who was with Mr Koh during those tense moments, admits that the reactions from US FCMs and CFTC's demand for MAS' assurance came as a surprise to him.[4] "How could market participants have misinterpreted our actions to increase margin requirements?" he says. "It just shows that in handling any crisis, it is important to communicate clearly to market participants. It is also crucial to be sensitive and be able to respond quickly to any unexpected developments so as to ensure that the crisis situation would not be worsened. SIMEX was fortunate to have Beng Seng around to lead us out of the crisis."

Following the crisis, MAS again strengthened the legislative framework. On 1 March 1996, parliament passed a bill to amend the Futures Trading Act and the Futures Trading Regulations, allowing MAS to more closely monitor the activities of

traders dealing in futures contracts. The amendments were eventually carried over to the Securities and Futures Act introduced in 2002. Dr Hu told parliament that the fallout from Barings would not affect other SIMEX members. To instil further confidence, SIMEX arranged for a standby letter of credit of US$300 million from the local banks. This amount was later returned without being used.

MAS and SIMEX also conducted a thorough review of the exchange's rules, audit and surveillance systems and clearing practices. In a direct response to the Barings incident, SIMEX directed member firms to ensure that the head of dealing not be in charge of settlements, and that proprietary traders not handle customer business. Mr Leeson had headed both the dealing and settlement departments of BFS, which meant he effectively controlled both sides of the trading operation – a fundamental oversight by Barings. The exchange also appointed a panel of distinguished professionals and regulators from the international futures industry to advise on how it could be protected from similar crises in future. On the panel's recommendations, SIMEX began to broaden information flows – in particular the sharing of information on large trading positions – with its mutual offset partners, the CME and the International Petroleum Exchange. Meanwhile, MAS pledged to step up cooperation with overseas futures regulators to better coordinate the supervision of futures trading.

Ultimately, the losses incurred by BFS and the consequent collapse of its parent bank had no impact on the integrity or stability of Singapore's financial sector. Nevertheless, Barings' collapse was a timely reminder of the importance of a regulatory framework that is both effective and proactive, and that keeps up to date with changes in the international financial environment. The episode also reflected the need for greater coordination between regulatory authorities of different jurisdictions – in this case, between London and Singapore. Mr Leeson, for example, had been denied a broker's licence in Britain. This fact was not highlighted by Mr Leeson or by Barings when he registered as a trader with SIMEX in Singapore.

In the aftermath of the Barings crisis, Dr Hu was asked whether SIMEX could have done more to stop the failure of BFS. His reply was that SIMEX was only responsible for ensuring that the proper margin requirements were maintained and that BFS had the support of its parent bank.[5] "Beyond that, if a trading company like Barings Futures should decide to take a position either on behalf of the parent bank in London or clients it would be very difficult for a regulator to say, 'Look, you shouldn't do that'," he explained. "It would mean the regulator was running the company."

This is why one of the tenets of MAS' regulatory framework is to reinforce the responsibilities of corporate boards and senior management and see that their duties are discharged well. The Barings debacle showed that regulation cannot replace the primary role of the board and senior management in ensuring that the requisite controls and risk processes are implemented robustly throughout the organisation.

1997–1998: Asian financial crisis

The Asian financial crisis of 1997–1998 illustrates the reality of a global market and the contagion effect that it might bring. As a small, open economy, Singapore was not spared the fallout from the crisis. Singapore's stock market plunged 50 per cent while the Singapore dollar weakened 18 per cent. Thailand, Indonesia, South Korea, the Philippines, Hong Kong and Malaysia also saw their currencies come under immense pressure, as stock markets and property prices plummeted throughout the region. About five million Asians had lost their jobs and some of the region's largest corporations had collapsed.

Given the heightened volatility in the foreign exchange market, the trade-weighted Singapore dollar exchange rate was allowed to fluctuate within a wider range. In the absence of inflationary pressures, MAS eased its exchange rate policy to cushion the rapidly decelerating economy from the impact of the regional recession. As the currency crisis dragged on, the Singapore government implemented more direct cost-cutting measures.

The strong macroeconomic foundations it had laid over the years in the form of low foreign debt, huge foreign exchange reserves, large budget surpluses, high savings rates, low inflation and a sound financial system also helped Singapore weather the crisis. Singapore's banks were financially strong and well-supervised. Hence, any impact on their credit standing was minimal. "They have quite strong reserves because we didn't allow them to revalue assets and realise all their capital gains. That was the buffer," recalls Mr Koh Beng Seng. "So in fact [while] I know all

of them had to run down some of their reserves to offset the capital losses, but this did not impact their real capital."

In 1999, almost two years after the Asian financial crisis broke out, Fitch named Singapore's banking system the strongest in Asia. Standard & Poor's sovereign rating of AAA for Singapore was maintained throughout the crisis. Moody's rated Singapore one notch lower at AA due to the crisis but subsequently upgraded the rating to AAA a few years after.

Amid the increase in macroeconomic uncertainty and heightened volatility in the foreign exchange markets, MAS moved to a more accommodative monetary policy stance, but was careful not to set the currency on an outright depreciating course.[6] Such a move could have triggered speculative attacks against the Singapore dollar and sent confidence plummeting in the currency as a nominal anchor for Singapore's small open economy. The republic's strong economic fundamentals protected the Singapore dollar from depreciating. Commentators, including Associate Professor Ngiam Kee Jin, attribute this partly to Singapore's track record of long-term fiscal and monetary prudence. "It helped to reassure markets that the fiscal and monetary easing taken by authorities to address short-term problems are less likely to endanger or signal a deviation from commitments to long-term goals," Mr Ngiam concluded in a 2000 paper.[7] "Singapore (had) also built up a reputation during the September 1985 episode that it is willing to engineer an appreciation of the Singapore dollar to punish speculators. Speculators might have decided to leave the Singapore dollar alone during the Asian financial crisis because of Singapore's reputation of having a strong-willed and credible government."

Throughout the crisis, the Asian corporate sector and the banks that serviced them were savaged by fleeing investors and falling asset prices. In Singapore, MAS decided on maximum disclosure of information. To enable investors to judge the value of banks' assets, Singapore lenders abandoned, at MAS' instruction, their practice of maintaining hidden reserves in 1998. They revealed the market value of their investments, which were largely valued at book cost, as well as their non-performing loans and their past and future provisions. The banks also made substantial additional provisions for their regional loans, dealing with the potential problems upfront instead of waiting for loans to turn bad. When Singapore's economic recession turned out to be more serious and protracted than originally projected, the government complemented the easier monetary policy stance with more direct cost-cutting measures.

The government announced an off-budget package worth S$2 billion in June 1998 but when it became clear that the region-wide crisis was deteriorating to an even greater extent, a bolder S$10.5 billion cost-reduction package was introduced in November 1998. The main measures under this package included a 10 percentage point reduction in the employers' contributions to the Central Provident Fund (CPF) accounts of their employees, a wage cut of 5 to 8 per cent, and further cuts in government rates and fees. MAS was among those that argued for these direct cost reduction measures, rather than further exchange rate depreciation. It reasoned that while a large or continuing depreciation of the currency would enhance export competitiveness in the short term, the benefits could also quickly be eroded through higher inflation.[8]

A neutral monetary policy stance was subsequently maintained throughout 1999 to reinforce the government's cost-reduction measures and facilitate the recovery of the Singapore economy. At the same time, greater stability in the financial markets also allowed MAS to restore the narrower, pre-crisis exchange rate band.

Still, these were worrying times for MAS and other Singapore policymakers who watched the crisis with bated breath. "I don't think many of us (in MAS) slept very well during that period," recalled Mr Ravi Menon, the current managing director of MAS in an interview with the media a decade after the crisis.[9] "We were tense, coming in to work wondering if this was the day when things might blow up. They never did. Singapore felt the heat of the crisis, but it did not get burnt."

The currency crisis notwithstanding, MAS decided to press ahead with its plans to liberalise Singapore's financial sector. Singapore's relatively stable economic situation positioned its financial sector for the next wave of regional growth. Current Chairman MAS and Deputy Prime Minister Tharman Shanmugaratnam, who rejoined MAS in late 1997 as deputy managing director, recalls: "It was I suppose a unique experiment at the time, for Singapore to have embarked on a process of opening up every segment of the financial system during what was the worst crisis in Asian finance. Globally, people noticed what we were doing. We were taking a risk, no doubt about it, but people also thought it took some self-confidence for Singapore to move in this direction when times were tough. Plus they noticed that we were

very serious about not leaving a vacuum in the regulatory and supervisory arena and were instead strengthening capabilities, both at the MAS as well as importantly amongst the institutions themselves. So there was a sense that this transition to a more open and competitive system would work well."

The crisis taught Singapore several important lessons. In the earlier euphoria of the Asian boom, many firms and countries in the region had suspended normal approaches to risk assessment. Singapore survived because of its unstinting focus on prudent policies, both in the macroeconomic management of the wider economy as well as in the lending and investment practices of its financial sector. Although fundamentals like high surpluses and savings and zero external debt played a key role, Singapore's resilience and quick recovery is also partly attributable to MAS' willingness to take bold and effective measures in response to the crisis.

"After the Asian crisis passed, we were in a strong position to pick up," says Mr Lee Hsien Loong, Singapore's prime minister. "The fund management industry picked up, the hedge funds started coming to Singapore. Our banking sector consolidated and strengthened itself. And our stock broking industry also rationalised and consolidated, which otherwise would not have happened and we would have lost a lot of time." At the end of the day, Singapore distinguished itself because it remained sound and investors did not lose confidence in its prospects or its currency, he adds. "People felt that Singapore was safe, and they came to Singapore. That made a difference."

2008–2009: Global financial crisis

In 2008, after enjoying four years of sterling economic growth, the world was plunged into its worst economic crisis since The Great Depression of the 1930s. Most commentators now agree that the crisis had its origins in the inflated housing markets of the US and certain parts of Europe. On the premise that stock and property prices would continue rising in a seemingly endless economic boom, banks in those markets granted consumers vast amounts of cheap loans. It was of little concern to the banks if customers were over-leveraged or had bad credit histories, because they were able to securitise these loans and take them off their books. They sold the securities to investors and other banks, which re-packaged them, insured them against default and sold them off again to more investors. The party finally came to an end when the US housing market turned south and house prices fell sharply. As interest rates also began to rise, many borderline creditworthy borrowers defaulted on their home loan payments, resulting in losses for US and European banks holding mortgage loans or securities backed by those loans.

The crisis escalated when US investment bank Lehman Brothers filed for bankruptcy protection on 15 September 2008 under the weight of more than US$600 billion in losses. Just a day later, American International Group (AIG), the world's largest insurer, was also on the brink of collapse, having provided credit default swap (CDS) protection against a stunningly large proportion of mortgage and asset-backed securities. It was subsequently unable to meet the collateral margin calls from its counterparties when the value of these underlying securities dropped. The news created global shockwaves and sent international markets into a tailspin. As little was known about the extent to which financial institutions were exposed to collateralised debt obligations (CDOs) linked to sub-prime mortgages, and amidst a rapid devaluation of these assets and a drying up of trading liquidity in secondary debt markets, there was a breakdown in confidence amongst financial institutions. This led to a liquidity and credit squeeze in both the interbank and broader financial markets. As consumers, companies and investors all turned cautious, the global consumption of goods and services fell sharply, leading to one of the sharpest worldwide economic contractions in history. The Western economies in the eye of the storm were hurt the most, but Asian economies that had grown reliant on doing business with the West did not escape unscathed either. In Singapore, manufacturing and exports plunged by more than a third and the economy contracted by a record 10 per cent in the first quarter of 2009.

Singapore introduced a decisive S$20.5 billion Resilience Package during the 2009 Budget. This included measures to stimulate bank lending, such as the Special Risk-Sharing Initiative, as well as a groundbreaking Jobs Credit scheme that paid companies to retain their workers and helped avoid a spike in retrenchments. The coherent and complementary nature of these policies not only provided a buffer against the downturn, but also helped prepare Singapore to capitalise on growth opportunities when the global economy rebounded.

MAS also tailored its monetary policy responses to the volatile economic situation that prevailed in the months immediately following the outbreak of the global financial crisis. In October 2008, it eased its monetary policy stance from a modest and gradual appreciation to a zero-percent appreciation of the S$NEER policy band. This was to accommodate what would be a period of low or even negative growth ahead. Six months later, MAS re-centred the exchange rate policy band at the prevailing level of the S$NEER, while keeping the zero-percent appreciation.

Fortunately, MAS had important safeguards in place before the crisis broke out. These included strict solvency and liquidity requirements, rigorous supervision, and a functioning and orderly interbank market. In the area of solvency, MAS required the assets of banks and insurance firms to exceed their liabilities by an appropriate margin. MAS also imposed on Singapore banks stringent capital requirements that were above global norms. In addition, local banks and insurance firms also did not have large exposures to either US mortgage-related securities or to the institutions that failed, and their asset quality remained relatively strong. Emeritus Senior Minister and former MAS chairman Goh Chok Tong summed it up by saying: "MAS' regulatory framework has generally been regarded as stringent, and in some aspects, it exceeds international standards … This approach of emphasising robust regulation and supervision has proven to be a prudent 'through-the-cycle' policy. It has helped our financial system remain resilient through this crisis."[10] Singapore's banks had not been caught up in the rush for new financial innovations that had played a big part in the crisis, partly because the country's small domestic market made the then-fashionable securitisation and risk transfer of assets unfeasible.[11]

Operationally, MAS moved quickly to focus on the areas that it considered the most important. Aside from maintaining the stability of the Singapore dollar, it had to ensure the stability of the banking system, tackle the fallout from the AIG fiasco and deal with investors who had lost money in Lehman Brothers-linked structured products. MAS had to be especially vigilant towards the end of September 2008, when the interbank markets in the US and Europe were not functioning properly. Interest rates spiked (and in some cases were momentarily unquoted) as banks, concerned about the solvency and liquidity conditions of other banks, became unwilling to lend to each other. In view of this, MAS kept higher levels of liquidity in the system during this period, even though domestic interbank markets here were relatively calm. MAS also reassured financial institutions that it would continue to anticipate the market's funding needs and consider any unique liquidity needs of individual banks on a case-by-case basis.

Just a few months earlier in July 2008, MAS had expanded its Standing Facility to include all MAS Electronic Payment System participant banks, effectively quadrupling the number of market players with direct access to the facility. This move, made in anticipation of tighter lending conditions, proved prescient. The facility meant banks could avoid scrambling to square large and potentially destabilising positions in the market, thus helping to moderate intra-day volatility in overnight interbank rates. Another move, this time to establish a US$30 billion swap line between MAS and the US Federal Reserve in October 2008, also helped calm any potential US dollar funding anxieties in the Singapore market. With wholesale market conditions improving, the arrangements were allowed to expire on February 2010, without MAS having to draw on the facilities.

As early as the start of 2007, when the first signs of the impending crisis began to emerge, MAS intensified the supervision of foreign banks in Singapore. On top of regular discussions with the banks' management, boards and auditors, MAS kept up its dialogue with the banks' home and host regulators and the head-office auditors of foreign bank branches. Contingency plans to safeguard the interests of depositors and investors were drawn up in case any foreign bank failed in Singapore because of problems at home. To preserve the high level of confidence in the domestic banking system, MAS announced a guarantee for all Singapore dollar and foreign currency deposits in banks, finance companies and merchant banks licensed in Singapore. The move followed similar steps taken by Australia, Hong Kong and several European nations. The guarantee expired undrawn on 31 December 2010. "We spent several nights building on work that was done earlier, to go through all the fine details to craft a scheme that was credible and which did not put the whole of the government's balance sheet on the line," recalls former MAS managing director Heng Swee Keat. "What were the considerations for doing it? The main consideration was that, during that period of great uncertainty, depositors were very jittery and the blanket guarantee put up by other governments would tilt the decisions of depositors on where to deposit their funds. And if they were to start moving funds, it could destabilise and hollow out the banking system, and at the same time, destabilise the

currency market. All these would have severe consequences on the economy, and it would be difficult to recover."

The concern that Singapore might be left out if other regional governments issued deposit guarantees was a key motivation, says Ms Teo Swee Lian. "When we realised that many countries in the region were planning to issue blanket deposit guarantees, we felt that we could not be behind the curve, especially taking into consideration the fragile global sentiment at that time," she explains. "Many of us went back to the office that Sunday afternoon and never saw sunlight again for many days while we worked on how to implement a deposit guarantee in Singapore. We had never faced this situation before and we had to start formulating the plan from scratch."

In addition to stress tests for individual financial institutions, MAS regularly conducts coordinated industry stress-testing exercises with banks and life insurers. During the crisis, MAS increased its focus on the regular stress-testing work performed by Singapore-based financial institutions. As economic conditions deteriorated rapidly, MAS increased the magnitudes of the stress parameters used in the industry stress test exercises. It also worked closely with financial institutions to review their internal stress test results, which showed that the institutions were generally resilient.

Still, Lehman Brothers' failure affected many Singaporeans. Thousands of people here, including sophisticated investors, professionals, housewives and retirees, invested money in structured products linked to Lehman Brothers. There were also concerns about the fate of American International Assurance Company (AIA), the Asian subsidiary of AIG. On 16 September 2008, AIA policyholders thronged AIA Singapore's customer service centre in Finlayson Green to make enquiries and, in some cases, surrender their policies. To stem further panic, MAS issued a statement advising AIA policyholders not to rush to surrender their life policies, explaining that AIA Singapore is required under Singapore's Insurance Act and Regulations to maintain sufficient financial resources to meet all its liabilities to policyholders at all times. Looking back, Mr Heng points out that it was essential for MAS to ensure that there was no panic. "Our concern was that policyholders should not surrender their policies prematurely, because if they did, they would not be able to get the same kind of policy," he recalls. "They would have lost money, particularly for those who are elderly. They would not be able to get the policies on the same terms because such terms are very much dependent on age and pre-existing medical conditions."

Finally, MAS had to deftly resolve the potentially explosive issue of how to deal with retail investors who had lost money investing in structured notes linked to the bankrupt investment bank Lehman Brothers. In Hong Kong, such investors had taken to the streets, protesting in public demonstrations that sometimes turned violent. MAS announced on 10 October 2008 that 9,750 retail investors in Singapore had bought a number of structured notes that were in default or redeemed early following Lehman Brothers' collapse. About 8,000 of these investors had purchased the Lehman Brothers Minibond Programme notes. Investors clamoured to get their money back, with many claiming they had been mis-sold the notes by financial institutions. MAS put in place an orderly process to help investors resolve their disputes with the firms that had sold them the notes. Investors could take their complaints directly to the financial institution and, if they were not happy with that outcome, they could go to the Financial Industry Disputes Resolution Centre Ltd (FIDReC) to have their cases mediated or adjudicated by independent persons. Affected investors were assured their complaints would be handled fairly and properly.

In addition, MAS directed the financial institutions that had sold the notes to review each complaint on a case-by-case basis, and underlined the seriousness of the situation by stipulating that the complaints resolution process should be supervised personally by each institution's chief executive officer. Independent persons were also appointed by the financial institutions to oversee their handling of complaints for these notes. Specifically, MAS urged financial institutions not to take an "overly legalistic" approach when resolving customer complaints. Less than a year later, settlements amounting to more than S$107 million were offered to over 60 per cent of the complainants.[12] Meanwhile, MAS worked closely with the receivers and trustee for the Lehman Brothers Minibond Programme notes to see the liquidation process through.

Following a wide-ranging investigation into the sale and marketing of the structured notes linked to Lehman Brothers, MAS concluded that there had been various instances of non-compliance with MAS' notices and guidelines. In July 2009, MAS banned 10 financial institutions from selling structured notes for

periods ranging from six months to two years. MAS also outlined plans to enhance existing rules and enact tough new laws to strengthen the sale and advisory process for investment products. "So the end result of all these efforts was that we had the mechanism to resolve the complaints of mis-selling from investors in a way that was independent and credible and which, I think, resulted in a fair outcome. We also had a process of investigating the financial institutions for breaches," Mr Heng says. "We later issued a public report on the shortcomings. There was a lot of pressure from the financial institutions not to publish the report because it would inflict reputational damage on them. I stood firm … These were serious shortcomings and we owed the public an explanation."

Even though local banks weathered the global financial crisis well, there is no room for complacency. The basic framework has proven its robustness, but MAS is still scrutinising the system to minimise vulnerabilities and close regulatory gaps where they exist. In the meantime, global standard setters have been busy deliberating over specific areas in which to buttress regulation and board and senior management oversight. As details of international proposals are firmed up, MAS has declared that it will consult widely with the public and the industry and adopt new international standards in ways that are appropriate to Singapore's unique context.

Looking back, Ms Teo says that the crisis showed, in many ways, the clarity with which MAS officers saw their objectives and their strength of purpose. Paying tribute to her predecessors in financial supervision, she says it was "through their steadfast efforts that we had a rock solid foundation for our financial system going into the crisis". The crisis had also been an illuminating experience for supervision staff, she adds, because they experienced why they had to be rigorous in supervision especially during normal times, so that the financial institutions could withstand severe shocks. Also, the man in the street often entrusts his lifetime savings to financial institutions and MAS officers saw firsthand the anxiety and distress caused to investors by the problems affecting financial institutions.

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Nine

INTERNATIONAL ENGAGEMENT

MAS has placed increasing importance on playing a useful and significant role on the international stage. MAS is an active member of several major regional groupings such as the Executives Meeting of East Asia-Pacific Central Banks (EMEAP) and ASEAN Central Bank Governors Meetings, as well as global bodies such as the International Monetary Fund (IMF), the World Bank and the Bank for International Settlements (BIS), and the Financial Stability Board (FSB).

MAS has also carefully cultivated relationships with leading central banks. It has developed close bonds not only with its ASEAN and Asia-Pacific counterparts – including China, Korea, Japan, Australia and New Zealand – but also with friends further abroad such as the US Federal Reserve Board, the European Central Bank, and key European and Latin American central banks.

Yet MAS has not always been so proactive in its approach to international relations. In its early days, the central bank adopted a more cautious stance, wary of the fact that a high international profile engendered greater expectations. Over the years, however, MAS has become more proactive about fulfilling its international obligations. In doing so, it has elevated its global standing and raised awareness about its policies, helping it establish a reputation as a sound monetary policymaker and financial regulator.

Today, MAS is recognised for its efficiency, high-quality work, and innovative policy solutions. MAS leaders nonetheless continue to devote an increasing level of time and resources to participating on the international stage, acknowledging that as financial systems become more interconnected and regulatory standard-setting becomes more globalised, international relations and developments will be of increasing importance to MAS' policy development.

International relations: the early years

Almost as soon as MAS was formed in 1971, the central bank busied itself with cultivating relationships with key international financial institutions, including the International Bank for Reconstruction and Development (IBRD), the IMF and the Asian Development Bank (ADB). Singapore had already accepted the obligations of the IMF's Articles three years before MAS was established, and the IMF made efforts to recognise this proactive cooperation upon MAS' inauguration. MAS' first managing director, Mr Michael Wong, was immediately made Singapore's representative to IMF's Board of Governors. MAS also received the honour of hosting the 4th Annual Meeting of the Board of Governors of the ADB that year.

On top of participating in international and regional conferences and seminars, MAS' management also spent a significant amount of time on overseas visits to various central banks and financial institutions, developing key relationships that would prove crucial in the organisation's later years. MAS' then-chief manager, Mrs Elizabeth Sam, spent two months in Europe getting to know bankers and regulators. Mr Wong also arranged an overseas stint for Mr Ng Kok Song, another MAS official who rose to become director of the banking and international departments and later moved to the Government of Investment Corporation (GIC) to be its managing director and group chief investment officer. Mr Ng, who was based in London in the early 1970s, spent some time at the merchant bank Schroders and with its then-chairman Gordon Richardson, who later became Governor of the Bank of England.

Mr Ng regards his time in London as one of the most exciting periods of his working life. "I remember when I arrived in London, the financial institutions that we were dealing with, the banks and the brokers, they were very keen to meet me. I was invited by them for lunches in the city of London," he recalls. "Those were the

Top and above: Meeting of the Board of Governors of the Asian Development Bank, 15–17 April 1971.

good days, very interesting. A lot of it was chit-chatting, a bit of gossip and financial markets were not all that active in those times. But I benefited from networking with the chairmen of banks and the heads of their international departments and many very knowledgeable people." Mr Ng adds that he was also able to spend some time at the Bank of England. "The Bank of England was regarded as the doyen of central banks because London was quite a sophisticated financial centre," he says. "Commonwealth countries were keen to learn from the British. I went to the Bank of England for courses and through them I got to meet many other people in central banks."

Mr Wong says that the contacts Mr Ng made were immensely useful to him and MAS. "But more importantly he spent time with them and learnt how the city (of London) worked," says Mr Wong. "If you are going to be in [a] central bank, you have to be an insider. You must have access to the key people that matter so that you will know [the] actual story and what is going on in those markets."

This insider knowledge was to be invaluable in helping both Singapore and Malaysia avoid the massive fraud trap that was the Bank of Credit and Commerce International (BCCI). Mr James Keogh, who was seconded to MAS from the Bank of England in the 1970s, provided MAS with a plethora of vital information, including warnings about BCCI. In turn, Mr Wong, who was "very close friends" with his counterpart in Malaysia, Tun Ismail, alerted him to the dangers of the bank and thus kept BCCI out of Malaysia. "As central bankers, we shared with each other what we knew so that we could prevent unsound institutions from threatening the stability of our financial systems," says Mr Wong.

Close working relationships were built between central banks in the region back then. "Right from the beginning, even when we were in the Ministry of Finance, the ASEAN central banks usually held annual meetings," recalls Mrs Sam of the days before MAS was set up. The meetings were to discuss issues of common interests and other contemporary happenings, resulting in "quite a tight, closely knit group of governors who met every year". In fact, the cooperation among central banks was probably better than that between governments, she says.

MAS joined this tight-knit club almost as soon as it became a formal set-up. In May 1971, two months after MAS was formed, it was admitted to the Council of Governors of Monetary Authorities of South East Asia, New Zealand and Australia

Mr Michael Wong (left) and Mr Hon Sui Sen (right) at the IMF/IBRD meeting in Washington, 1972.

(SEANZA), which met twice a year to discuss matters of common interest. MAS also played an active role in the meetings and activities of ASEAN and the Association of South East Asian Central Banks (SEACEN). In July 1972, MAS convened the first meeting of the special committee of ASEAN Central Banks and Monetary Authorities to discuss areas of monetary and financial cooperation. It hosted its first SEACEN Conference in January 1975, and the 14th meeting of the SEANZA Council of Governors in November 1981.

In addition, MAS cultivated relationships with other central banks. The Bank of England, of course, was a natural ally for newly independent Singapore, and the two central banks enjoyed a warm relationship. MAS was also on good terms with the US Federal and State regulators. Former deputy managing director Koh Beng Seng recalls that "we have very good relationships … very open, very frank." Both institutions would consult regularly on the health of American banks and their operations in Singapore. If either needed assistance, he points out, "help was only a phone call away". Mr Koh also says he was advised by Dr Goh Keng Swee to cultivate relationships with Chinese officials and to encourage them to use Singapore's market to manage their reserves. Eventually, the Chinese set up the Investment Company of People's Republic of China (ICPRC), which is still in operation in Singapore.

Top: Mr Hon Sui Sen (centre) at the SEACEN Governors Conference in 1975. Above: Mr Michael Wong (at podium) speaking at the IMF Seminar on Government Finance Statistics held on 3–7 February 1975.

The initiative MAS displayed in building relationships and attending and hosting meetings underscored its zeal to establish itself as a team player on the international front, even if it lacked sufficient experience to contribute substantially to international policy discussions at the beginning. Discussing its international relations in an early annual report, the organisation detailed the various conferences and meetings it attended that year, and added: "As a mark of MAS' commitment to regional co-operation, MAS made a point of following with interest all ASEAN projects not directly related to its own work."

Developing capabilities: learning from others

In its early years, MAS made the most of its newfound international ties by watching and learning from the activities of other central banks. With almost no experience in central banking or financial supervision, MAS' first officers soon found that the best and quickest way to scale the learning curve was by looking to their leading international and regional counterparts. "When we started off, nobody had what I called central banking experience," recounts Mr Wong. "Since we had to feel our way, we established close relationships with other central banks, especially those that we had historical linkages to, like the Bank of England, Bank Negara Malaysia, and the Reserve Bank of Australia. Those were the three central banks which were crucial to our formation."

Some of the vital first lessons that MAS learned were practical ones: for instance, how to prepare annual reports. "There were established central banks, both the leading international and regional ones who were ahead of us. And we would look at their annual reports and see what they did, and see whether it gave us a model to work off," says Ms Yeo Lian Sim, a former deputy managing director.

MAS also took on some of the best practices of its neighbours. The policy of sending scholars overseas to learn from other countries was adopted from the Bank of Thailand, for which Mr Wong had considerable respect. "In the early days, I was amazed at the capabilities of the Bank of Thailand … their policy of sending scholars away," he says. Asia's central banks also organised joint training courses and established a training centre to disseminate shared knowledge among all their staff. As MAS grew in size and international standing, training remained a key feature

of its relationships with other central banks and organisations. Mr Koh remembers sending most if not all of the bank inspectors and officers in the 1980s to the Federal Reserve Board, the Bank of England or the BIS for training.

Since then, MAS has progressed to sharing its own knowledge in central banking and financial regulation with its counterparts. MAS now holds regular training sessions and study trips for many of its colleagues in ASEAN and around the world. For example, MAS enjoys a close collaborative relationship with China. Joint training initiatives have been institutionalised between China and Singapore by Memorandum of Understanding (MOU).

One of the institutions from which MAS took the most guidance in the early years was the IMF. "I think we tapped a lot on them for resources … throughout that whole period there was always somebody seconded through the auspices of the IMF to Singapore to help us with certain aspects of what we wanted to do," says Mrs Sam.

The generous array of advisors that the IMF and its member central banks seconded to Singapore helped to build the core foundations of MAS: banking supervision and economic research. Two Burmese officers, Messrs San Lin and Tun Tin, held extensive discussions with the finance minister and permanent secretary about how to supervise banks and draw up the necessary rules. Under the IMF's auspices, a Mr Nakarni from the Reserve Bank of India and a Mr Schopfer from the Bundesbank also arrived in Singapore in the 1970s to advise on developing money markets and setting up an economic research unit respectively. Other IMF secondments who were to have a significant impact on MAS' formative years included Mr James Keogh from the Bank of England, who warned against the BCCI; Mr Franz Ballman, a German lawyer and senior banking advisor with the IMF, who stayed with MAS for a number of years and helped develop many of its cornerstone policies; and Mr Neil Mackrell from the Reserve Bank of Australia. "Throughout these years we had these, I guess, advisors, who to a large extent held our hands," says Mrs Sam.

After Dr Goh Keng Swee took the reins of MAS as chairman in 1980, however, the ties between Singapore and the IMF cooled somewhat. Dr Goh was "not enamoured of this relationship", says Mr Freddy Orchard, a former MAS executive director. He recalls "having to do a paper on whether we should withdraw from the IMF … I don't know whether it was out of jest, whether he wanted to test us, or whether it was a serious question." Mr J Y Pillay, a former managing director,

Top: Mr Lee Ek Tieng, then MAS managing director, signing an MOU between China and Singapore. Above: Dr Richard Hu officiating at the opening of the IMF–Singapore Regional Training Institute in 1998.

remembers the IMF in the 1980s "bringing up the subject of the adequacy of our reserves … not that we had inadequate reserves, but we had too much in the way of reserves." However, accumulating these reserves was crucial for a small, open economy like Singapore, and the IMF's assessment of the adequacy of Singapore's reserves was one issue that Dr Goh was "irritated about", says Mr Orchard. Dr Teh Kok Peng, former MAS deputy managing director, echoes this recollection. "[The IMF's] relationship with Singapore has never been easy," he says. In Dr Goh's view, he remembers, the IMF held little relevance for Singapore: "He said the day Singapore borrows from IMF, we are finished as a country because capital would have fled and there will be turmoil unlike much bigger countries. So if you cannot borrow from the IMF and you are always lending to the IMF, and you are too small to have any say, what's the benefit of membership?"

It was only in the late 1990s, when Mr Lee Hsien Loong became chairman of MAS, that a serious effort was made to re-engage the IMF more actively. Besides accepting the full increase of its quota subscription to the IMF of 504.9 million Special Drawing Rights (SDRs) in 1997, Singapore began making overtures to host the IMF-World Bank Annual Meetings. These efforts eventually paid off when Singapore was selected as the destination for the meetings in September 2006, a coup attributed to MAS' then-managing director Mr Koh Yong Guan, who had strongly advocated that Singapore step up to the plate as a host. Mr Koh recalls. "There were some concerns about hosting a large international event for an international financial institution. Some others, including myself, felt quite strongly that we should give it a go, so I'm glad we finally were able to host the event. I think it is something we have to do once … though the costs were significant … I thought the end result of raising Singapore's international profile to the world and strengthening our relationship with the IMF and the World Bank was well worth it."

A stronger external focus

In fact, Mr Koh believed MAS could have done more to build its external relations. "We went through a period of time when we were not actively engaging the IMF or other international financial institutions and had problems filling the position

Mr Tharman Shanmugaratnam (left) at the IMF-World Bank Per Jacobsson Lecture in 2006.

of executive director and represent our Southeast Asia Voting Group at the IMF," he says.

Steps to rectify this were taken almost immediately. MAS set up an International Relations Department in 1998 that coordinated its responses and policy positions on all international issues. Previously, the international relations function had been carried out separately by a few different departments. However, given the increasing importance of global coordination and financial policy developments, MAS saw value in having a single department play a more effective and constructive role in the international community. Today Singapore shares a close working relationship with international bodies such as the IMF, the World Bank, the ADB and the BIS.

Meanwhile, Mr Koh had been working hard to secure an invitation for Singapore to join the Group of 20 (G20) forum that was in the process of being set up. Although Singapore was not ultimately granted membership, Mr Koh's efforts were not entirely in vain. When the Financial Stability Forum was set up in 1999 in the wake of the Asian financial crisis, Singapore was one of four countries not in the Group of 7 industrialised nations (G7) that was asked to participate, and

Speakers at the IMF-World Bank Program of Seminars – "Growth, China and India", 16 September 2006.

Mr Koh attended the Forum's first meeting in Paris. The BIS also invited MAS, as one of two non-G7 central banks, to join a taskforce on accounting issues in 1999.

When Mr Tharman Shanmugaratnam took over as deputy managing director (Financial Supervision) in 1998, he felt it was useful for MAS to build strong relationships internationally, including both central bankers and regulators in the region and those in the leading global centres. Among these were the UK's Financial Services Authority and the Bank of England, the Australian Prudential Regulation Authority and the Reserve Bank of Australia. Of particular importance were also the Federal Reserve Board, the Federal Reserve Bank of New York and the state banking regulator there, and the Securities and Exchange Commission (SEC) and Commodity Futures Trading Commission in the US, because "that's where some of the largest financial institutions and markets are based". It is "quite important to have working-level relationships at several levels with those organisations," Mr Tharman says.

He adds that today, MAS undoubtedly "participates a lot more actively" in the steering committees and technical working groups of global standard setting bodies such as the Financial Stability Board (FSB), the Basel Committee of Banking Supervision (BCBS), the International Organisation of Securities Commissions (IOSCO), the International Association of Insurance Supervisors (IAIS) and the Financial Action Task Force (FATF). "That's very much in our interest as a financial regulator and supervisor to be well plugged in, to contribute," he says. "There is a lot at stake in new rules, and we cannot be reactive. We have to be contributing to the formulation of international regulatory and supervisory policies." In March 2011, Mr Tharman himself became an example of this principle after he was appointed the chairman of the International Monetary and Financial Committee (IMFC), which is the key policy advisory committee of the IMF.

The BIS and BCBS were key fora to further these relationships. Although Singapore only became a member of the BIS in December 1996, it was quick to step up its participation in activities of the BIS and the BCBS. Apart from attending the regular meetings of the Asian Consultative Council (ACC) and of the Meeting of Governors from Major Emerging Market Economies, MAS also participated actively in key workgroups such as the BIS Eurocurrency Standing Committee (today the Committee on the Global Financial System, or CGFS) and the Committee on Payments and Settlements Systems (CPSS). MAS continues to be an active member of these Basel working groups and contributes actively to the subgroups that examine the more technical aspects of the Basel III proposals. MAS also successfully hosted the 16th International Conference of Banking Supervisors (ICBS) which was jointly organised with the BCBS.

One area in which MAS was particularly involved was in the BCBS' work on developing internationally-recognised core principles for effective banking supervision. When the principles were issued in September 1997, MAS was a member of the Core Principles Liaison Group that formulated ways for the principles to be disseminated and adopted worldwide. MAS actively contributed to the last review in 2007 and is currently co-chairing the BCBS Core Principles Group that has been tasked to conduct the latest review.

Throughout the last decade, MAS has assisted in the development of guidance and standards relating to banking supervisory issues under the BCBS, and these contributions were recognised when Singapore was admitted as a member of the committee in September 2009.

Closer to home, Singapore has established itself as a vocal advocate of advancing integration within Southeast Asia and Asia, and MAS has become a vital player in steering regional financial arrangements. The best example of this is the Asia-wide financing framework that eventually took shape as the Chiang Mai Initiative. Under this scheme, announced in May 2000, the original five ASEAN central banks extended their existing swap arrangement to include all other ASEAN members, and set up a network of bilateral swaps and repurchase agreement facilities with Japan, China and Korea as well. In November 2000, the ASEAN central banks, including MAS, confirmed the expansion of the swap agreement and increased the amount of the facility from US$200 million to US$1 billion.

The regional initiative continued to expand in the following years. By the time of the global financial crisis in 2008, the multilateral facility had grown to US$80 billion, and was further enlarged to US$120 billion as the crisis injected into the agreement a sense of greater urgency and value. At the ASEAN+3 (ASEAN and Japan, Korea and China) Finance Ministers' Meeting in Bali in May 2009, members also agreed on the key components of the facility, including the creation of an independent surveillance unit to promote objective economic monitoring. The Chiang Mai Initiative Multilateralisation was signed in December 2009 and came into force in March 2010. Singapore was selected to host the ASEAN+3 Macroeconomic Research Office (AMRO), the independent surveillance unit supporting the initiative.

MAS has also been proactive in adopting and implementing regional standards. One of the most recent examples is the ASEAN and Plus Standards scheme, which Singapore adopted in June 2009, joining Malaysia and Thailand as the first ASEAN jurisdictions to do so. Under this scheme, companies will find it easier to issue shares and bonds in more than one ASEAN country, as they are required to comply with only one set of disclosure standards in their prospectuses.

Regional cooperation during the Asian financial crisis

The outbreak of the Asian financial crisis in 1997 afforded opportunities for MAS to engage more actively in the international arena. MAS was among the EMEAP members that met in Shanghai in July to help assemble a US$17.1 billion loan for Thailand. As part of this IMF-led package, Singapore extended a US$1 billion bilateral swap line to Thailand. In the second half of 1997, Singapore also pledged US$5 billion to an IMF-organised US$36.6 billion financial package for Indonesia.

Singapore also participated in the first Asia-Europe Finance Ministers' Meeting (ASEM) held in Bangkok in September 1997. On the sidelines of the meeting, ASEAN countries held discussions with Japan on possible responses to the crisis. MAS helped convene a follow-up meeting of finance ministry and central bank deputies in Manila in November that year, where the New Framework for Enhanced Asian Regional Co-operation to Promote Financial Stability – the Manila Framework – was drawn up. The framework proposed a regional surveillance mechanism, measures to strengthen the IMF's capacity to respond to financial crises, enhanced economic and technical cooperation, and a cooperative financing arrangement to supplement IMF's aid on a case-by-case basis.

MAS also participated actively in fora like ASEAN and APEC and global efforts to address the needs highlighted by the financial crisis, which focused on three areas: increasing the resources of international financial institutions, reforming the world's financial architecture, and strengthening each country's financial supervisory systems.

In the first area, Singapore agreed to increase its IMF quota to 862.5 million special drawing rights (US$1.2 billion). Singapore was also among the 21 contributors to the New Arrangements to Borrow scheme between the IMF and 25 members. This came into effect in November 1998 and provided the IMF with supplementary resources to forestall any financial crisis that could pose a risk to the international monetary system. The scheme was activated almost immediately in the following month, giving the IMF 9.1 billion special drawing rights (about US$12.7 billion) for Brazil's drawdown from the IMF's new Supplemental Reserve Facility. Singapore contributed up to 99.4 million special drawing rights (about US$140 million) to the IMF credit line to Brazil, which the IMF repaid within a few months in March 1999.

The second area of reforming the international financial architecture became a major concern of the global community in 1998. The US held a special meeting in April 1998 of finance ministers and central bank governors from 22 industrial and emerging economies – a grouping that would prove to be the forerunner of the

Top: Islamic Financial Services Board Summit 8 May 2009. Above: MAS International Advisory Panel 2010 calling on then President S R Nathan.

Top: International Banking Seminar (G30), Singapore 2006. Above: BIS Special Governors' Meeting, Shanghai, 12–13 February 2006.

current G20. The meeting formed three working groups to study, respectively, how to increase transparency and accountability, strengthen financial systems, and share the burden of dealing with financial crises with the private sector. MAS took part in the latter two working groups. The recommendations of the working groups were endorsed by the G7, providing the basis for further work on reform to be carried forward by the G7 and the IMF.

As the dust settled on the Asian financial crisis, regional and international forums continued to work on the third area: strengthening international standards and monetary systems. In June 1999, Singapore joined the Financial Stability Forum, which was formed to study financial stability issues and to monitor international financial market developments for potential vulnerabilities.

The US-Singapore Free Trade Agreement

In 2002, Singapore entered into negotiations with the US on a landmark free trade agreement (FTA) that would free up the movement of goods, services and capital between the two countries. Since Singapore was more open to imports of goods, it stood to benefit from easier access to the US market. In services, however, the opposite was true and the US wanted Singapore to liberalise access for US firms into sectors like financial and legal services.

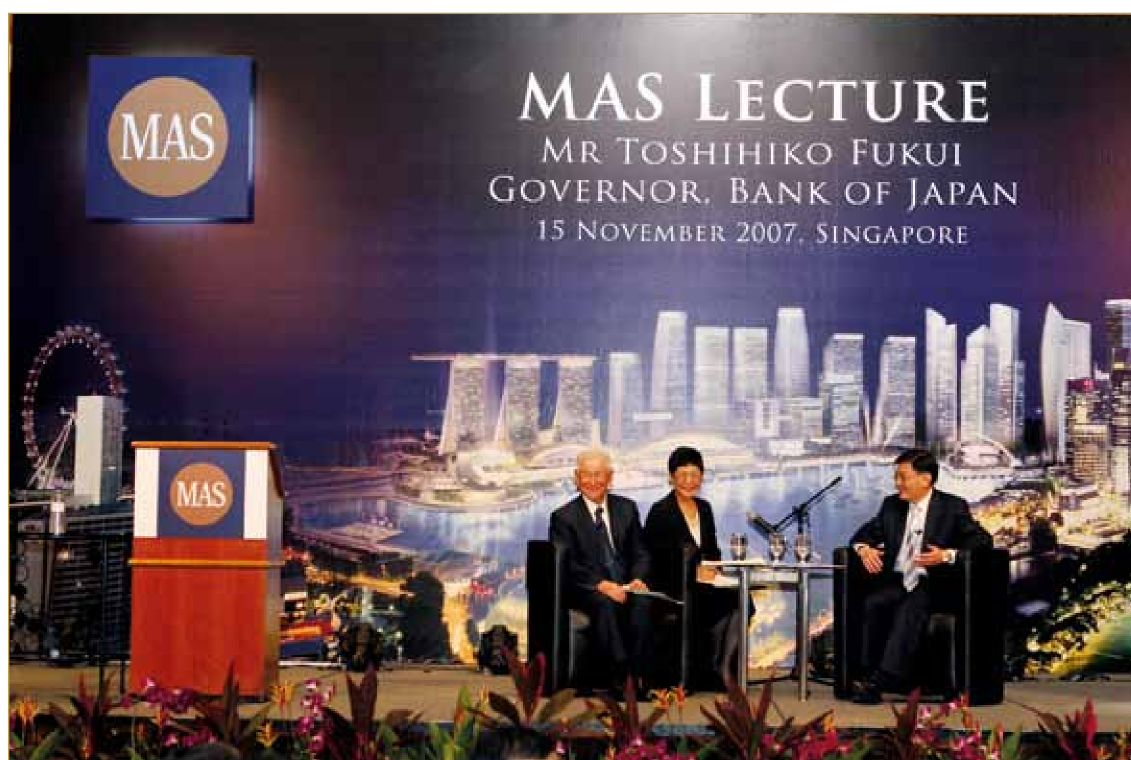
Current MAS managing director Ravi Menon, who was at the time the lead negotiator for financial services, remembers that it was a long and hard negotiation that forced Singapore to weigh its interests carefully and make critical trade-offs. "The most difficult negotiation was over the right of US banks to acquire controlling stakes in our local banks. This, for us, was a deal breaker," he recalls. "We were willing to give qualifying US banks more ATMs and branching rights but not acquisition rights."

Mr Menon says it was a heavy burden to bear, knowing that the FTA could unravel as a result of an MAS issue. But MAS stood its ground. "It was deeply satisfying," he adds. "We made a good case why as a small country we absolutely needed to have a core of strong local banks at the heart of our financial system, to anchor our stability. The situation was quite different from that in the US. It is a large country that could afford to be more open. Even so, they do have their core of strong local banks, upon whom the Fed would lean in times of trouble."

But just when everyone thought the issues had all been resolved, another MAS issue cropped up – this time on the eve of the two countries coming to an agreement on the treaty. "The US wanted a very strict provision, which required Singapore to forswear its right to ever impose capital controls or restrict transfers out of Singapore," recalls Mr Menon. "This was the heyday of the Washington Consensus. Capital account liberalisation was an important tenet of US policy and they wanted to make sure that one of the most open economies of the world, Singapore, subscribed to it unconditionally."

In response, MAS said that it had no such controls and would almost never impose them because its economic survival depended so much on its openness as a trading nation and as a financial centre. But, at the same time, it could never say "never" either. Dire circumstances could one day necessitate such controls and to restrict MAS' right to impose them could seriously undermine Singapore. The issue dragged on for three months after the close of substantive discussions, as MAS and US Treasury officials worked furiously at a compromise. "It was an insightful exercise in the best tradition of all international negotiations, on how to move away from binary choices of yes or no," says Mr Menon. "Once you get out of that, into a creative mode of 'yes, but …' or 'no, but …' then there is room for compromise." In the end, compromise was indeed struck with neither party entirely happy with the outcome. The agreement was that there would be no capital controls but they would be allowed in a set of specific exceptional circumstances.

Looking back on it, Mr Menon says the FTA set new benchmarks not just for Singapore but also for MAS and the financial sector. "It represented a high water mark of what we were willing to allow by way of market access by a foreign player," he adds. "It was for me an exhilarating exercise over three years, which culminated in a three-month period of intense negotiations, but ultimately deeply fulfilling."



Top: Bilateral meeting between MAS and Bank of Thailand.
Above: MAS Lecture by Mr Toshihiko Fukui, Governor, Bank of Japan, on 15 November 2007.

New challenges

While Singapore enjoys a sparkling clean image in the international arena, and is known for its transparency, efficiency and strong government, it has also had to tackle some misconceptions, chief among which is the myth that Singapore is a tax haven. As a result of the government's fiscal prudence and high savings, Singapore has been able to progressively cut taxes for companies and individuals alike. Unfortunately, a side effect of this has been the mistaken perception that the country operates as an offshore sanctuary for wealthy people seeking to avoid high taxes in their home countries.

Singapore, however, has always staunchly maintained that it does not encourage such activities. "This is a place where serious economic value-add is the name of the game, not regulatory arbitrage or tax arbitrage," says Mr Tharman. "We make no apologies for the fact that taxes are low in Singapore because that is only made possible by a highly disciplined fiscal approach. It's a plus for Singapore that we've been able to keep the government budget under control and thereby keep taxes under control. And we needn't be defensive about that." He adds, "People know that we are not a 'nameplate' jurisdiction. It's a place where financial institutions base substantive activities, because we are part of a growing Asia and have an environment that's conducive to high value work in financial services. Our human capital especially."

In any case, foreign investors flock to Singapore not simply because of its low taxes, but for a host of other more fundamental reasons as well. Singapore's education system, clean and green environment, cosmopolitan and skilled population, and strategic location in Asia are among the many factors that draw immigrants and expatriates alike. To dispel the tax haven misperception, Singapore has made more concerted efforts to participate in cross-border information sharing agreements. This resulted in its inclusion in the OECD's white list in 2010, signalling that Singapore has agreed to international tax standards and has substantially implemented the required measures. Other negative images of Singapore, however, may not be so easily extinguished. One comment sometimes heard is that while the country is clean and efficient, it is unexciting. "Singapore has a reputation of being predictable," says Mr Koh. "Things could be more exciting."

Another key issue is the question of Singapore's continued relevance and influence on the world stage. In the past, Singapore was able to leverage its position as a member of ASEAN to contribute more to international fora. "Through our participation in international central bank group fora, we were able to gain insight and a window to look at our region as a whole," says Mr Koh. "I think we played a useful role because we were able to provide views and an assessment of developments in the region." However, the creation of new supranational groupings like the Group of 20 (G20) – of which Singapore is not a member – presents new challenges for Singapore's voice on the international stage.

For one thing, Asia is already well represented in many global bodies with or without Singapore's participation. For another, while Singapore is one of the top 25 systemically important financial centres in the global context, its domestic banks and institutions are generally too small on a global scale to command much attention. According to Mr Koh, Singapore should not be content with "a staffing role" at international fora. "We should be seen as a global authority on any issue," he says. "So the challenge, I think now, is how do we distinguish ourselves and gain prominence as a financial centre on key issues that are of current interest globally."

However difficult this may be, Singapore must continue to strive to have a say in international affairs because as a small country, it has much to lose if the rest of the world sets the rules or worse, ceases to adhere to them, says Mr Menon. "Whether it is in the area of international trade, international economic cooperation, safe passage of ships, air travel, financial regulation and supervision, the international monetary system, we have a great stake in the global system being stable, predictable and rule-based," he emphasises. "We have a large stake but we are a very small country. So we need to work extra hard to be able to punch above our weight, to be able to influence and shape opinions, standards and the broader international consensus."

The good thing is that Singapore brings something different to these discussions, being a First World city, yet also classed in most international settings as an emerging market or developing economy. "We are clearly in both worlds," says Mr Menon. "That gives us a unique perspective that advanced economies don't necessarily have – it's been two hundred years since they were developing economies. And emerging economies of today have a set of issues, considerations and priorities that are very different from advanced economies. Singapore has been able to act as a bridge because we understand those perspectives. We speak the languages of both the advanced and emerging economies."

Given its limited resources, however, perhaps the best thing for MAS to do is to focus and concentrate its resources in the key fora, says former MAS chairman and Singapore's emeritus senior minister, Mr Goh Chok Tong. "There are certain advantages to being more active in the [fora] which will impact us as a financial centre. Especially now, since the whole financial industry is being reviewed, following the subprime crisis. So we have to be more active over there but not in all [fora] because we just haven't got the resources. We try to be a member of those meetings which are helpful to us." One such forum is the Financial Stability Board, "where they value our technical contribution, our judgment, our knowledge in the area, and our status as a key financial centre."

Likewise, MAS is also keen to deepen its existing relationship with the IMF and to play a more pro-active role in the Fund and in its Southeast Asia voting group. This is especially important given the increased global economic inter-linkages and a need for greater international policy coordination. Together with other Asian and ASEAN countries, Singapore is keen to leverage on the reformed IMF to step up Asia's role in shaping the global policy debate and in helping others better appreciate the Asian growth experience.

Combating money laundering and terrorism financing

One matter of priority for Singapore is participating in the global fight against money laundering and terrorism financing to protect the integrity of the international financial system. Together with other relevant government agencies, MAS contributes to international meetings that set global regulatory and industry standards to implement appropriate measures combating these illicit activities. To this end, Singapore has been a member of the Financial Action Task Force (FATF)[1] since 1991 and is also a member of its Steering Group.

The high standards in Singapore's financial regime were reaffirmed by FATF through a mutual evaluation by its assessors in 2008. FATF rated Singapore's system as among the strongest globally, on par with other key financial centres. Still, Singapore

continues to remain vigilant against global and regional money laundering and financial terrorism risks and is fully committed to enhancing international standards and strengthening regimes to fight such crimes.

Underlining its efforts to enhance regional resilience and stability, Singapore helped to found the Asia/Pacific Group on Money Laundering (APG)[2] and assumed the group's co-chairmanship between 2008 and 2010. To support global and regional engagement, Singapore hosted, inter alia, the first FATF Plenary meeting in Southeast Asia in June 2005 and the APG Annual meeting in July 2010.

Conclusion

Despite its small size, MAS leaders, past and present, all believe Singapore has the ability to distinguish itself on the international stage. Hosting international events and regulatory meetings in Singapore helps improve the nation's image by letting foreign visitors see for themselves how Singapore is evolving as a true international city, Mr Tharman says. "There's nothing like visiting Singapore and being able to walk around and see what it's like, meet financial institutions here and know what they are doing. Nothing like that experience for our counterparts and peers internationally, for them to know that we are not so different from London, New York or Amsterdam or Paris."

The quality of Singapore's work in international fora also stands it in good stead, says Mr Lee. Whenever MAS seconds its officers to global organisations such as the BIS, they help to promote Singapore's image as a source of excellent talent. "People take note of the quality of the officers. So if we can have inputs into the international system, it helps to build up our reputation and safeguard our standing as a major financial centre. And people have respect for us," Mr Lee explains. "Then when we say, 'We are in good standing with the Fed', it means something. They trust you." Singapore should therefore take a greater interest in international relations and build up its reputation globally, adds Mr Lee. "That's something which we have to pay more attention to. It means resources but I think it's worthwhile."

The bottom line is that Singapore cannot afford to ignore or neglect its relationships with other countries. And even if it may not currently command as much attention on the world stage as bigger nations, the roles may be reversed in the future. Ms Yeo Lian Sim recalls putting in a lot of effort some years ago to arrange a meeting with a central banker, who could only spare 15 minutes to speak with her. But a few years later, as Asian countries rose in economic strength and prominence, the same banker was calling Ms Yeo for some face time in Singapore. "So you see the inter-connectedness," she says. "At first you are the one seeking information, seeking the expertise, seeking the connections. And later as the world gets interconnected they, too, realise they need to know what is happening here in the East."

ENDNOTES

1 The FATF is an intergovernmental organisation that was established in 1989 to develop and promote international standards to combat money laundering and terrorist financing. The FATF standards comprised the Forty Recommendations on Money Laundering and the Nine Special Recommendations on Terrorist Financing, i.e. "40+9 Recommendations". The Steering Group performs an advisory function to the FATF President to assist him in shaping policy directions of the FATF.

2. The APG, incepted in 1997, is an autonomous and collaborative international organisation whose members and observers are committed to the effective implementation and enforcement of international AML/CFT standards, particularly the FATF 40+9 Recommendations, within the Asia-Pacific region.

STAFF & LEADERSHIP

Throughout the interviews with past and present MAS leaders, one thing is constantly stressed: the organisation can do all that it does mainly because of the talent it recruits. MAS now employs more than 1,100 people, but it started out in 1971 with just 112 staff, mainly personnel from the Ministry of Finance who had been performing banking-related functions. Within two years, staff strength had almost doubled to 213. Many of the recruits were young graduates who had "shown great enthusiasm in their work", according to MAS' annual report that year. Senior officers, not to be outdone, had "also accepted the challenges of a new organisation readily".

What the annual reports did not reveal, however, was the struggle to hire people for the new organisation, especially trained employees with relevant talents. MAS' first managing director, Mr Michael Wong, had expected the Public Service Commission (PSC) to provide the organisation with its own scholars, but in that he was disappointed. It turned out the commission only recruited for the civil service. MAS cast its net wide, bringing in people of all disciplines, as long as they had achieved academic excellence, says Mr Wong. "We took in economists, yes, and accountants also. But we were also willing to look at other people who had good degrees. For example we recruited a graduate with a degree in theology!" Mr Tharman Shanmugaratnam, deputy prime minister and an MAS veteran, remembers

MAS' management team, 2011.

trying to attract good people to the Economics Department. "It was in the '80s more difficult because the economics profession was not well-established," he says. "Young graduates wanted to move straight into the frontline of trading activities or supervision of the banks. A career as an economist was not something they were very interested in."

From the start, MAS management realised the importance of creating an environment that would appeal to people of calibre. Under Mr Wong's regime, this meant a free and open culture. "We had, I believe, a very open environment to discuss everything. It was to encourage a free-flowing discussion, and everybody was entitled to express their views and concerns," he says. For Mr Tharman and the Economics Department, an attractive environment meant "preserving that sense of autonomy so that people felt that they could do independent professional work and not feel they were cogs in the wheel. They had to feel that this was a different job where they could really exercise their minds." He took pains to cultivate young officers and make them feel relevant through personal, one-on-one reviews. "It was a bit of apprenticeship, with a lot of learning by doing for all of us, and the economists were in many ways artisans," Mr Tharman says. Ms Yeo Lian Sim, a former deputy managing director who headed the International Department and oversaw capital markets regulation, remembers an early boss from the Economics Department who would sit her down with the papers that she produced and go through them with her. "I tried to do that too, as much I can, so that you convey the understanding," she says. "It is not whether the analysis is right or wrong, or good or better. It is whether you are conveying the understanding to the staff so that the staff grow. The willingness to spend time has been a good thing." This culture of mentoring continues today, with young officers routinely putting up and presenting papers at top-level meetings in MAS. "Of course, we asked them questions," says Emeritus Senior Minister Goh Chok Tong, who was MAS chairman between 2004 and 2011. "Their superiors are there too, to answer broader questions."

Despite the hard work and relatively low pay compared to other financial institutions, the pioneering MAS team was fiercely committed to the organisation. Many in MAS' first batch of top management recall this dedication, including Mr Wong. "We were so committed to the organisation that we [didn't] think about money as much," Mr Wong recalls. "The majority of staff stayed on and worked hard because of the shared desire to do something for Singapore and to build up this financial centre. This will then create employment, add to our GDP growth and so forth. I must say that I feel that I had a dedicated team of people to work with. That working environment was the best environment I've ever had in my life."

Training

In the initial years, it was vital that MAS staff had adequate training to prepare them for the new responsibilities of central banking and financial market supervision. While a number of officers attended local courses in the first year, MAS also sent people overseas for special training by other central banks and international organisations – a trend that was to grow over the next 40 years. In 1971, MAS dispatched four officers to the US for courses conducted by the International Monetary Fund (IMF) and the Federal Reserve Board in Washington. The next year, four senior officers were also sent abroad: one to a training programme conducted by the Federal Reserve in the US, another to the training course conducted by the IMF Institute, and the

remaining two to the SEACEN (South East Asian Central Banks) Banking Course and the SEANZA (South East Asia, New Zealand, Australia) Central Banking Course held in Malaysia.

As MAS expanded its array of functions and responsibilities, it eventually widened the variety of courses that its officers were sent for. The investment managers in MAS' reserve management department, for instance, were given the opportunity to visit investment houses both in Singapore and overseas. This came about after Mr Ng Kok Song – who worked in MAS' reserve management department before leaving to join the Government of Singapore Investment Corporation (GIC) – spent some time at the World Bank with Mr Eugene Rotenberg, its vice-president and treasurer from 1969 to 1987. After Mr Ng described his experience at the World Bank as "invaluable", he and MAS chief manager Elizabeth Sam arranged for all of MAS' investment managers to be trained at external institutions, such as securities houses in Japan, broking houses in the UK, investment banks in the US and commercial banks in Germany and Switzerland. They were also allowed to sit in at meetings when these experts came to MAS. As Mr Wong puts it: "I think the great thing about MAS at that time was that you were given an opportunity to listen to outside experts when they were around, so that you learnt. Because we recognised that all of us were learning. We were new and couldn't say that we were the repository of expertise."

Over the decades, MAS staff have continued to be intensively trained in these ways, both locally and abroad. Courses attended in Singapore include those conducted by the Civil Service Institute, the Institute of Banking and Finance and the Singapore Insurance Training Centre. Officers have been sent overseas to be trained by institutions such as the IMF, the Association of International Bond Dealers, and the Wharton Econometric Forecasting Associates. Apart from lessons in central banking, money and foreign exchange markets, insurance, investment, finance and bank supervision, employees have picked up skills in areas such as stress management, oral presentation and speed-reading. MAS has also sponsored staff for foreign language courses as well as local diploma courses in banking.

Current managing director Ravi Menon says that it was an overseas attachment at the Bank for International Settlements (BIS) that showed him that while the substantive issues in international finance are important, the manner in which they are discussed is not to be overlooked. "Unlike most other international organisations, the BIS is an honest broker for different views to be brought to the table," he says. "Its great gift, and I don't mean this in a trivial manner, is actually in organising purposeful meetings." Other than providing objective assessments and ensuring that all discussions take place candidly and confidentially behind closed doors, a lot of attention is paid to the process of eliciting views, adds Mr Menon – who speaks, when do they speak, how to ensure balanced discussions and so on. "The BIS does it very well. It was a useful learning experience," he concludes.

MAS National Day celebrations in 2011.

The establishment of the MAS Academy in 2008 underscored the importance that MAS placed on capacity building and training. It came from an idea dreamt up by former managing director Heng Swee Keat. "After a few years in MAS, I realised that the officers here are very deep technically and that is a real strength," he recalls. "But at the same time financial systems are evolving – how do we position ourselves ahead of the curve? I don't think any regulator can possibly know everything about what is happening in the system, but we must have enough people who know the key linkages and dynamics." So Mr Heng called assistant managing director Andrew

Khoo into his office and drew a chart of how he thought a potential academy could be organised. He thought there should be three elements – the first being technical training aimed at deepening the expertise of staff in areas like reserve management, monetary policy and financial sector linkages. The second element had to do with leadership and management and the third was to contribute to the training of private sector financial professionals and also overseas regulators.

Today, a wide range of in-house professional and leadership training programmes are offered to equip officers at various levels with the required competencies to perform their duties effectively. Through programmes conducted by in-house trainers, experienced senior MAS officers pass on institutional knowledge to younger officers, and inculcate in them MAS' ethos and values of integrity, commitment, teamwork and enterprise. Entry-level officers may enrol in the MAS Diploma in Central Banking to acquire broad-based financial sector knowledge and understanding of MAS' key functions.

Other than classroom training, the academy cultivates peer groups – a platform for officers to acquire, create and share their collective expertise in specialist subject areas of importance to MAS' work. MAS officers contribute to the academy's Case Studies e-Collection. In 2009, for example, a compilation of materials tracing the development, causes and government policy responses to the global financial crisis was added to the collection. The academy also invites supervisors from other countries to its courses in banking, securities and IT supervision.

Career development

Topical training aside, MAS has made other efforts to attract new officers and help them develop their careers in the organisation. In 1978, MAS introduced scholarship schemes – funding both undergraduate and postgraduate degrees – for existing and potential staff members. Since then, the organisation has awarded more than 200 undergraduate scholarships, covering diverse fields of study from economics and business to chemistry and engineering. Scholarship holders have attended prestigious schools both locally and overseas. MAS has also awarded more than 90 postgraduate scholarship and development awards to its staff since 1991.

In his time as managing director at MAS, Mr J Y Pillay also introduced the Shell appraisal scheme. It was implemented in 1986 to more accurately assess the performance and long-term potential of staff. Over the years, other initiatives to appraise and develop talent were adopted, including one in 1999 where departments were asked to draw up functional training roadmaps for different jobs to address the specific training needs of their staff. More recently, the Professional Requisites and Outcomes Framework (PROF) was implemented in 2009 to provide a more structured method of talent development. PROF sets out the professional expertise and competencies that officers develop in their various job roles as they progress in their careers. It is also used as a tool to plan for each employee's training path by identifying his or her learning and development priorities and then mapping out training and on-the-job learning plans.

To give its staff wide exposure to the big picture issues that govern its operations and to prepare them for leadership in the organisation, MAS also routinely rotates its staff across different departments. Yet it was not until the last 15 years or so that MAS started to do that in earnest. Part of the problem had to do with the MAS recruits themselves, who saw a stint at the central bank as a stepping stone to lucrative careers in the private sector. "The culture was that you want to specialise very early," says former managing director Lee Ek Tieng. "You want to do foreign exchange, for example, because 20 years ago, FX was a glamorous career and there was a lot of money to be made." But there was also a sense within MAS in the early days that it was too lean an organisation to have the luxury of posting officers with specialised skills and knowledge to other departments. "They say, 'Can't do it. I got nobody to supervise the banks.' And you know in a way there is some truth to that," Mr Lee adds. "But it was effective as an organisation, I must emphasise. It was doing an excellent job but we need to develop talent as an organisation."

Today, MAS staff are given the opportunity to work in various departments throughout their career. However, as the work in each area is still as specialised as ever, they would need to have three qualities, says Mr Tharman. First is the ability to learn constantly, in order to keep up with the latest developments in the global economy and financial markets. Second is the "discipline of maintaining an independent mind" – being able to be in touch with what is happening on the

MAS staff receiving long service awards from Mr Tharman (left photo, right) and Mr Menon (right photo, right) at the National Day celebrations in 2011.

ground but also retaining objectivity and not getting absorbed in the mood of the moment. Third, which is perhaps the most unusual, is "having the aptitude for specialist content even when you are performing senior management functions". This means getting to grips with the details of even the most complex arguments in central banking and financial supervision. In this respect, MAS is a little bit different from the rest of the civil service, he says. "There's a premium on mastering the flesh and details, not just the scaffolding, because that's what makes this organisation tick. Formulating good policies and managing the financial sector well requires getting to grips with a fair amount of detail." Therefore, rather than being either a specialist with in-depth expertise in one chosen field, or a generalist who knows a bit about everything, MAS staff should be "serial specialists", adds Mr Tharman. "So even as they hop from one specialisation to another they don't lose the know-how they built up in their previous stints."

Mr Goh cites integrity of character and an excellent grasp of domain knowledge as must-have qualities of an MAS officer. To that he adds the additional layer of teamwork. "If you want to function on your own, I think it will be very difficult in MAS," he says. "Even in information technology, you have to work as a team. You have to put in the system for the whole place and understand what the clients want. These to me are the key elements." This collaborative culture is behind the "One MAS" vision inculcated by Mr Heng during his time as managing director. "Because issues are cross-cutting, we can pool together the knowledge across different bodies to achieve a better outcome," he says. "Whether we fail or succeed depends very much on the way we work together." This is why he often told staff not to come to meetings simply advocating their respective department positions, but to explore and advocate solutions that take into account the perspectives of other departments.

Of course, it takes much longer for someone to develop into a "serial specialist" with knowledge and expertise in multiple areas. This is why Mr Tharman's advice to MAS staff is to take a long view of their careers. "What you end up doing may be very different from what you start off doing. But what you end up doing will always benefit from what you start off doing," he says. It's a sentiment Mr Pillay shares and he believes people should remain in MAS longer than they do in the private sector. "It can just be a few years, but you would like at least half the people who enter MAS to spend 10 to 20 years in the organisation."

Retaining talent

Persuading good people to stay for a long time, however, has always been a challenge for any organisation. And among the various ministries and statutory boards, MAS faces perhaps the fiercest competition for talent. Here, the ability to move across departments to learn new things and even embark on a fresh career has helped, but it does not change the fact that the central bank competes for talent directly with financial institutions that have much deeper pockets and value the training and experience that MAS provides for its employees. As Mr Michael Wong puts it: "If I'm outside (MAS) in the financial industry, I will invariably look at who is good in MAS, cultivate them and induce them in one way or another to leave so I get the benefit of the basic training you give them." For this reason, MAS has taken pains to benchmark its salaries against those of private firms and refine its remuneration policies to keep pace with other institutions. In 1999, MAS introduced higher variable bonuses for employees with better performances, strengthening the link between pay and performance. MAS also accelerates promotions for outstanding officers and presents long-service awards to loyal staff.

Pay, however, should not be the centrepiece of MAS' strategy to retain talent, says deputy managing director Teo Swee Lian. "The most important factor is that we have to keep people engaged and committed," she says. "I strongly believe that

Top: National Day Celebration 1993. Above: 11th Inter-Central Bank Games, Singapore 1986.

Top: MAS Dinner and Dance 2006. Above: MAS staff performers at the MAS Dinner & Dance in 2008.

Top: MAS staff perform at the National Day celebrations in 2010. Right: MAS staff compete in a netball competition at the Inter-Central Bank Games in 2005. Opposite: Mr Lee Hsien Loong participates in the fun and games at MAS' Family Day at the Singapore Zoological Gardens in 2002.

if a person wakes up in the morning looking forward to going to work, you really don't have to worry about the person not giving his or her best and doing a great job." While Ms Teo recognises that remuneration is a key linchpin in attracting and keeping quality staff, she adds: "Quite honestly, I think pay is important only insofar as we do not expect MAS staff to lead monastic, austere lives. We should give a fair wage that allows good talent to pass what I call the 'mother-in-law' test: enough so that the in-laws are satisfied that you are able to give your family a fairly comfortable life. Beyond that, there is something not right if we attract talent that is motivated predominantly by money. The affinity or alignment of the values with what MAS is trying to achieve might not be there."

Still, retaining the younger generation of recruits – especially those on scholarships – has proven difficult. Prime Minister and former MAS chairman Lee Hsien Loong notes that despite MAS handing out undergraduate scholarships every year, large numbers leave around the time their six-year bonds to the organisation expire. "Within five or ten years, large numbers had left. And within 15 years, most of them were not with us anymore. We have kept on feeding this system but we were never getting the output at the senior enough levels that one day would give us a good pipeline for our top management." So while it is important to pay special attention to grooming these young scholars and charting their career paths within the organisation, MAS must also accept that this is "a different generation", Mr Lee says. "Many of the young scholars that come in take the perspective that this is just one of several jobs which they will have in their life and one of several employers. They are loyal officers but they did not join with a view to a lifetime employment. That's just the way this generation is. So we expect a good number to leave but we want a good number of the good ones to stay with us. And I think that we have done better although every time the market heats up, MAS has to scramble and make sure its terms stay competitive."

Staying competitive has often meant highlighting non-monetary perks of working in MAS, such as the opportunity to examine and understand the latest developments in financial markets and products. MAS' role as Singapore's central bank also puts its officers in direct contact with financial luminaries from around the world. "They interact with the global best – the top tier of counterparties from whom [they] can learn," says Ms Yeo. "Leaving MAS to join another institution, they

Top and above: Staff Seminar, 2010.

may not have those same opportunities. And that's critical especially for the younger people." Mr Menon also points out that MAS also exposes people to a spread of challenges that will be hard to replicate in the private sector. "We bring together more diverse functions than most other institutions in Singapore," he says. "So for ambitious and talented people who want to try their hand at different things, we offer a great training ground."

Ultimately, what will make an MAS officer stay must go beyond monetary incentives or career prospects. "It must be a culture of contributing to the larger good of Singapore. More importantly, we must be able to give them a sense of pride," says Mr Goh, reprising the public service zeal of MAS' pioneering batch of staff. Mr Menon puts it this way: "You can't stay in this place for long if you don't have a sense of public service in some corner of your heart. A good number of young people have that. We need to appeal to that sense of higher purpose: that we are in this because we are here to safeguard the long-term interest of Singaporeans and secure the future of this country. If we make a wrong move, it has deep consequences for Singapore. And so for people who want to serve the larger good, MAS is a great place to be."

Mrs Sam provides a cheerier perspective from which to view any "brain drain" from MAS. In keeping with the central bank's aim of developing financial expertise in the financial sector, losing its own employees to financial institutions may be an effective – albeit unorthodox – method of disseminating the values and viewpoints that MAS has ingrained in its staff. As she puts it: "It is good when they go and lead other institutions because hopefully some of it remains. If you believe in certain things when you are in MAS, when you leave you should continue to carry that with you." Mr Goh also believes that MAS officers who leave for the private sector continue to help the organisation from afar. "If they were risk officers or prudential supervisors, they bring with them the values and skills they acquired at MAS," he says. "So I've told [MAS senior management] to look at this positively. Just take in more people than you need. When we lose some good staff, they help us as well if they remain in the financial industry."

Inter-Central Bank Games 2005.

Leadership at MAS

In the task of finding a leader, as in so many other areas, MAS faces unique and particular challenges, says Mr Koh Yong Guan, MAS managing director from 1998 to 2005. Not only do the incoming MAS managing directors have a significant distance to catch up on their foreign counterparts in terms of central banking background, they have to develop technical knowledge of the unusually wide range of financial supervision functions that MAS also covers. In contrast, other central bankers are largely responsible only for implementing monetary policy and can thus more finely hone their expertise in monetary policy and economic matters. "First, we are laypersons in that respect, and secondly, we have a much broader array of responsibilities to deal with," observes Mr Koh. So "having to deal and interact with [other central bank governors] on an equal basis was quite challenging and required a lot … of self-learning."

Mr Lee acknowledges that the learning curve for central banking, compared with other areas of the public sector, is exceptionally high. This requires an incoming

managing director or chairman to pick things up very quickly, and from diverse teams of experts. "In many areas, you can go in based on first principles and make sensible judgements. In central banking you will need to make sensible judgements but you also need a lot of specific domain knowledge," he says. And if you are talking about capital adequacy or risk assessments or even exchange rate policy, there is a lot of basic economic theory behind it. In addition to that, there is also specific knowledge of how things work in Singapore and how MAS has operated the system over the years and the logic behind it. These are things which no single person – chairman or managing director – can master all by himself, even after he's been there a long time." Mr Goh says the complexity of MAS' work means that papers often cannot be summarised into a short four or five pages, as is the practice in the Singapore cabinet. "I have not tried and I will not ask MAS to condense everything into four pages," he says. "Some issues are complex."

Because of these inherent challenges, the post of MAS managing director – the equivalent of a central bank governor in other countries – has historically been filled by "a particular kind of top civil servant", notes Mr Tharman. "It's not just any permanent secretary who can fill the job," he says. "It is a job with a different definition compared to the PS job in most ministries. You need to manage teams of specialists and get to grips with a fair amount of technicality. But at the same time keep the broader perspective that you need to lead and run an organisation well and not over-indulge in the details." Being managing director also means leading and motivating professionals and specialists who may know much more about the job. "That means not being hands-off, but neither does it mean that you take over their job and think that you can run things better than them," he says.

For this reason, Mr Pillay says his time as managing director was "the most intellectually challenging period of my career in the government service". Part of the thrill came from the high degree of autonomy with which MAS operated, given its role as central bank. Mr Koh, having worked in the Finance, Education, Health, National Development and Defence Ministries, as well as the Inland Revenue Authority of Singapore (IRAS), says MAS presented a uniquely enjoyable and challenging experience. "I really found it to be the most interesting of all the assignments I have been given."

Mr Heng says even though he was used to handling economic matters in the Ministry of Trade and Industry (MTI), he found central banking to be a difficult and challenging area because of the technical knowledge needed. "When I was in MTI, the focus was on the real economy … so there was a great deal of micro policy and industrial policy, much less on the macro and modelling aspects," he says. "I felt that as managing director of MAS, I would have to exercise judgment and make decisions at critical points, probably with little advance notice. Hence, it was important for me to very early on drill down to the technical details and understand as much of these as possible." Mr Heng says he ended up collecting a whole host of materials and staff papers to read on the weekends. "After a while, you get comfortable with the technical details and develop a certain grasp of these," he adds. "I enjoyed that, it was like going back to university."

At certain times in MAS' development, however, the executive role of the managing director in leading the organisation has also been very much shared by the chairman. Mr Goh cites the example of when Dr Goh Keng Swee took the helm as chairman in 1980. "He 'broke up' the whole place, formed GIC to invest the reserves and so on. That relationship was one where the chairman was very much an executive chairman in charge." The other example is when Mr Lee Hsien Loong became chairman in 1998 and instituted wide-ranging reforms of the organisation and the financial sector. Mr Goh says that because of this, one of the challenges facing MAS for the future is to build up the office of the managing director, so that financial institutions, other central banks and the Singapore public come to regard him unambiguously as the man in charge. "At the political level, the chairman and the ministers (on the MAS Board) provide the link to cabinet, but other than that, the public should begin to regard the managing director as the man in charge of MAS and in particular, the people in the financial institutions must regard him as the number one man," he adds.

Finding the right people to sit on the MAS Board of Directors has been challenging, according to current deputy chairman and Minister for Trade and Industry Lim Hng Kiang. The difficulty is that business leaders in the financial services sector are unlikely to want to join the MAS Board because that will constrain their careers, but people from other industries who may be more willing to sit on the board have a

limited amount to contribute to the discussions. Foreigners are also not ideal as MAS board members because of the sensitive nature of the organisation's discussions. "The MAS Board is one of those few boards where appointment of the directors is always a huge challenge," Mr Lim says. "If you take in somebody from the private sector, he faces many constraints. He can't become a director in so many other areas and even his main role in his main job may sometimes be constrained. In the end, we have to depend primarily on nominations internally, whether it's from the civil service or the quasi public sector or politicians. It is not the best outcome because you do really want to be able to widen your net and bring in the best talent, but unfortunately, this is the reality."

Conclusion

If there is one thing that past and present MAS leaders agree on, it is the importance of the people that work for the organisation. Looking ahead, this remains one of the key challenges that MAS must face in maintaining its effectiveness as a central bank. It will continue to need to find not just staff with technical knowledge and intellectual rigour, but also persuade them to stay long enough to eventually help pilot the organisation. This will not be easy in a sector where rival employers pay attractive salaries, but the hope is that MAS' impressive line of past leaders and sparkling track record in the past 40 years are reasons enough to inspire future generations to come.

Eleven

FUTURE CHALLENGES

What does the future hold for an organisation that has successfully navigated both internal and external change for four decades? With the track record that MAS has built up, will it be enough to re-apply time-tested principles to ensure that policies are executed as flawlessly as before? Or will the key objective be to continue to attract the best minds to work for MAS, and trust that these men and women will rise to the challenge and be as shrewd and adaptive as their predecessors? The answer depends partly on how much the future will resemble the past.

Regulating across borders

In Singapore, one key difference between MAS' early years and the future is that the financial sector has developed to such an extent that it may no longer be realistic to think of it in two parts – domestic and international. Both local and foreign institutions now have operations that span geographical boundaries and operate in markets that are very much inter-connected with one another, sometimes in ways that financial regulators may not even realise or fully understand.

This creates a challenge for international financial centres like Singapore, Hong Kong, and to some extent, even London, says current MAS managing director Ravi

Menon. "We are very open and play host to a large number of foreign bank branches. They are an important part of the financial centre. But from a purely prudential perspective, it is not a comfortable situation to be in because branches do not maintain capital, and capital is what helps absorb unexpected losses," he explains. "The last crisis brought home to us this potential vulnerability. The problems were not with our well-capitalised local banks. The problems were with some of our foreign bank branches which had problems in their home jurisdictions. This is something we need to continually strike a balance on, to look for ways to give us regulatory comfort without hampering growth and operations of foreign bank branches."

The setting of international regulatory standards, and their application across different jurisdictions, ameliorates this to some extent. But each country also faces a different set of circumstances and level of risks, so MAS will also have to decide which rules to adopt and whether to impose tougher standards. "You do not want to be seen engaging in regulatory arbitrage by having lower standards," notes Mr Menon. At the same time, putting in all the requirements seen as international best practice may not be necessary from a domestic risk perspective. "Of course, this is not static. Activities do move in response to differences in regulatory treatment," he adds. "When standards are tightened elsewhere, risky activities could come to this part of the world and we need to anticipate that and set our own standards high enough to deal with that. On the whole, I think it is going to make for a very challenging five or ten years down the prudential supervisory front."

Recurring crises

Another key feature of the future that many commentators and international policymakers agree on is that financial crises will no longer be exceptional events that come along once in a few decades. In this book, we have chronicled how the MAS dealt with three or four major crises in the last 40 years. Going forward, former managing director Heng Swee Keat has no doubt that crisis management will become a more frequently recurring theme for the organisation. "If crisis is going to be a recurrent feature, then being prepared for a crisis is critical," he says. "Learning to better anticipate what could go wrong by putting in place mechanisms to better understand innovations in financial instruments and markets is key."

But because future crises will always contain some element of surprise, MAS officers will also need to be "prepared for the unexpected", as abstract as that may sound. For Mr Heng, this means two things – the first of which is to adopt a different mental model. "We need to be able to see the situation for what it is, and to be able to change our assumptions and mental models quickly by looking hard at the facts and evidence before us. We have to be nimble in re-orientating our thinking, and be sufficiently resourceful and creative, so that we can think out of the box to decide what must be done differently." The other way of being prepared for the unexpected, adds Mr Heng, is to try and cushion blows to those affected by financial crises by boosting safety nets in the system. This is why the MAS has moved, for example, to increase the deposit insurance coverage limit to S$50,000, which fully insures over 90 per cent of depositors under the scheme.

Current deputy managing director Teo Swee Lian sums it up by stressing that the key to dealing with future crises is to never become complacent. "Our predecessors set the firm foundations, we built on it and going forward the new team will have to keep finding ways to be ahead of, or at the very least, abreast with the pack," she says. "We really only had a glancing blow from this last crisis but instead of preening and congratulating ourselves, we should glean lessons from what happened and keep trying to improve our resilience."

Revisiting beliefs and assumptions

Some of these lessons will mean revisiting conventional beliefs that central banks and financial regulators had always assumed hold true. One example is the overriding importance of consumer price stability in the economy. "In the past, central banks basically took the view that price stability is the core mandate of central banking and if you have price stability, everything else follows," says Mr Heng. "I think a lot of those doctrines need to be re-examined. Price stability itself does not guarantee financial stability, and financial stability is much more complex than we had assumed earlier." He adds that asset price bubbles can often form undetected – and quite independently from the early warning bell of high headline inflation – sometimes as a result of financial innovations and instruments. This is what happened with

collateralised debt obligations and credit default swaps in the 2008 crisis, leading to catastrophic results.

Mr Menon agrees. "Monetary policy everywhere has traditionally focused on stability in consumer prices. But in fact, dislocations in asset prices lead to far bigger misallocation of resources and can be more disruptive to economic growth than consumer price inflation," he says. "We all use monetary policy, either interest rates, exchange rates or money supply to target consumer price inflation. But we don't have a means for even measuring asset price inflation, let alone a coherent set of tools to deal with it." In Singapore, where an exchange rate-centred monetary policy targets consumer price inflation, MAS has no control over interest rates in conditions of perfect capital mobility. And if interest rates are low, they become a constant source of pressure for asset price increases. "I think the world is in an experimental phase on how to deal with asset price inflation", says Mr Menon. "And in Singapore we have been doing our own experiments. Developing a tool kit to address asset price inflation is going to be a key challenge for the next 10 years. What does it mean for adjusting our existing policy framework – I don't know. But I do know that we just cannot sit still and continue to apply the old paradigms. And we may need solutions that perhaps go beyond MAS."

Another example of what financial regulators need to revisit are assumptions regarding their traditional focus on the safety and soundness of individual financial institutions. While it will continue to be important to set prudential limits for these institutions, encourage them to elect good management and inspect them to ensure they comply with the rules, regulators must pay equal attention in future to the linkages between financial institutions. "You need to look at safety and soundness of the entire system – in other words, 'systemic stability'," explains Mr Heng. "Also, we need to look at inter-linkages over different periods of time because financial systems tend to be pro-cyclical and the lending, in periods of exuberance, feeds on itself." This could mean, for example, that in a boom when asset valuations go up, the value-at-risk models that measure risk exposure may indicate that financial institutions are becoming more and more safe when in reality, the risk to the entire system is increasing.

In the future, therefore, regulators may well take as their starting point a set of sensible rules, but they will have to learn to look beyond them. Mr Heng calls this the difference between "street light supervision" and "search light supervision". "In many places, regulatory authorities are given a certain mandate, and so they will make their rules based on that mandate," he explains. "It's like the story of this man who was searching for his missing key under the street light. Somebody came along and asked, 'Where did you drop your key?' And he said,' I dropped it at some dark corner.' 'But why are you searching under the street light?' 'Because that's the only place I can see!'"

Working with partners

Finally, there is a strong sense that in the future, it will be increasingly untenable for central banks and financial regulators to function in isolation, given the interconnectedness of financial institutions and markets. Organisations like MAS will, of course, need to cooperate more closely with global counterparts and participate more actively in discussions that identify and deal with imbalances and potential fissures in the international financial architecture. But what is less obvious, however, is the increasing need for regulators to rely on the financial institutions themselves, as well as the wider community, to help them achieve their regulatory objectives. "At a recent staff seminar, I jokingly referred to it as community supervision, borrowing from the concept of community policing that the Japanese police have been practising for years," says Mr Heng. "The message is that this is not a game of police and thief where the MAS is the police and everyone else out there is the thief. Rather, MAS is there to work with the community, and the community itself has to take an interest in keeping things safe and sound … Because the system is so complex that the more people take ownership of the system, the more likely they are to keep it stable." This means educating the media and consumers to look out for risks that threaten the safety of the system, but also changing the approach with which MAS conducts its supervision, adds Mr Heng. "We are not there to do an inquisition … we are not there to catch you," he says. Rather, it is actively partnering the boards and key management of financial institutions to get them to better understand and internalise the risks posed by their investments and businesses.

Looking ahead, key partners for MAS will also increasingly be the other ministries and statutory boards of the Singapore government. This goes against the

conventional thinking that MAS as the central bank must maintain its independence from the rest of the public sector. "Let me put it this way: MAS should see itself not as independent *from* the government, but independent *within* the government," Mr Menon explains. "For a small country like Singapore, an integrated, coordinated government is critical. Many of our issues require whole-of-government responses." The policy levers to manage asset markets, for example, do not lie within any one institution and consultation with agencies like the Ministry of Finance and the Ministry of National Development will be critical if MAS is to succeed. MAS also needs to ensure that in developing the financial sector, its manpower development plans are congruent with plans at the national level.

Yet a credible MAS must still be able to make independent decisions. It should not be coloured or constrained by other public sector considerations and certainly should not need to seek approval from government before acting. It is not an easy balance to strike, but Mr Menon says that an alignment of values and objectives across the Singapore government has facilitated the process. "It has helped tremendously that across government, there is a shared ethos of prudence and deep appreciation for the value of consultation," he adds. "So it has been quite easy for MAS to work with other ministries and institutions."

No secret formula

Ultimately, however, there is no perfect rule book or secret formula that an organisation like MAS can rely on. It is not simply the rules alone, or even who crafts or implements them that will be sufficient to ensure the success of Singapore's economy and financial sector. Prime Minister and former MAS chairman Lee Hsien Loong believes that it is all of the above, and more. "It is the rules which we make, the way we implement the rules, the imagination with which we break new ground," he says. "It's a continuing challenge because the point of balance is dynamic. It changes because there are new players, new instruments, new ways of doing business. And you want to be part of that without getting carried away with the latest fad. You have to manage also the problems that may arise to make sure it's wearable in the long term." It is a tough juggling act that – with the help of the experience it has gained so far – MAS aims to continue doing successfully for many more decades to come.