

information paper  
on  
economic statistics

**Value Added of Financial Services:  
Revision in Methodology and Estimates**

Singapore Department of Statistics  
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## **VALUE-ADDED OF FINANCIAL SERVICES: REVISION IN METHODOLOGY AND ESTIMATES**

### **I. INTRODUCTION**

1. In 1997, the Singapore Department of Statistics (DOS), in conjunction with the Monetary Authority of Singapore (MAS), initiated a review of the methodology for estimating the value-added of the financial services sector. The review confirmed that DOS's methodology adequately covers all major financial activities, but noted that existing data sources would have to be improved to reflect more fully the increasingly active trading in international (off-SES) securities and emerging fund management activities.

2. With the subsequent improvement in the quarterly data sources on the fees and commissions received by stockbrokers and investment advisers (including fund managers), DOS is able to improve its existing methodology for estimating the value-added contribution of these two activities.

3. The review also noted that it would be both timely and appropriate to implement recently revised national accounting guidelines for the insurance industry. The revised guidelines, which were spelled out in the 1993 edition of United Nations' *System of National Accounts* (1993 SNA), recommended the inclusion of the changes in reserves and the income arising from the investment of these reserves in computing their value-added. The Insurance Department, MAS agreed that these revisions would reflect more accurately the performance of insurance corporations.

4. This information paper discusses these methodological improvements and their impact on the estimates of the value-added of the financial services sector as well as on overall GDP. DOS will implement these methodological changes with effect from the release of the *Economic Survey of Singapore, Second Quarter 1999*.

### **II. METHODOLOGICAL REVIEW**

5. The financial services industry has not only expanded rapidly in the past decade, but it has also undergone significant changes. These changes mean that it is essential for DOS to ensure that the methodology used to track the performance and growth of the financial services sector continues to provide accurate, relevant and timely estimates.

6. With the above in mind, DOS undertook with MAS, a review of the methodology for estimating the value-added of financial services. The review, which was initiated in 1997, had the following two major objectives:

- i. to ensure that the methodology used by DOS remains relevant in the face of rapid changes and developments in the financial services sector; and
  - ii. to consider the adoption of changes in the conceptual treatment for measuring the output of some financial services.
7. The review noted the following trends and developments:
  - i. Singapore stockbrokers are increasingly processing and executing international (off-SES) security transactions for their clients.
  - ii. Investment advisory services (including fund management) is an emerging and rapidly expanding financial activity.
  - iii. Gains from trading in financial instruments, including financial derivatives, are becoming an increasingly important source of income for financial institutions.

8. In assessing the methodology used to estimate the value-added of the financial services sector, the review confirmed that DOS covers adequately all major financial activities. However, in recognition of the above trends for stockbroking and investment advisory services (including fund management), improvements in existing data sources were required to reflect more fully and accurately these activities. The development of improved methodology to estimate these activities followed the improvement by MAS in the quarterly data sources on the fees and commissions received by stockbrokers and investment advisers.

9. The review noted that the system of national accounts regards gains from trading in financial instruments as holding (or capital) gains. Hence, their exclusion from the computation of value-added is appropriate even if such gains are an important source of income for some financial institutions.<sup>1</sup>

10. With regard to the possible implementation of conceptual changes proposed in the 1993 SNA, the review noted important changes in the conceptual treatment, in particular of imputed bank service charges and insurance services. These conceptual changes are discussed, together with a brief overview of the existing methodology used to estimate the value-added of financial services, in the next two sections.

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<sup>1</sup> It is necessary to distinguish between these trading gains, which include gains from FOREX trading, from the gains (or margins) of foreign exchange dealers. The former arises from the treasury or portfolio investment activities of financial institutions, and is treated as capital gains, while the latter is the margins derived from the provision of a service (i.e. the buying and selling of foreign exchange to clients) by foreign exchange dealers. These margins represent payments for the implicit services provided by the foreign exchange dealers to their clients. It is therefore appropriate to include them in the computation of their value-added.

### III. MEASURING FINANCIAL SERVICES – CONCEPTUAL OVERVIEW AND EXISTING METHODOLOGY

11. Financial services can be broadly classified as follows:
  - i. Channeling of funds from one party to another by raising funds through taking deposits and/or issuing securities, and by making loans and/or purchasing securities.
  - ii. Providing specialised services to engage or facilitate financial transactions, i.e. transactions involving the creation, liquidation, or change in ownership of financial assets.
  - iii. Pooling of risk by underwriting insurance and annuities.
12. The first type of financial services is commonly known as financial intermediation services. Financial institutions that provide these services are referred to as financial intermediaries (FIs). In general, FIs include almost all financial institutions describing themselves as “banks”. In Singapore’s context, these would be commercial banks, merchant banks, the Asian Currency Units (ACUs) of these banks, and finance companies.
13. One major characteristic of financial intermediaries is that they do not charge explicitly for the services provided to their customers. Instead, what they normally do are to impose a higher interest rate on the funds lent to their borrowers, and to pay a lower interest rate on the funds received from their depositors. The interest spread constitutes their earnings and is used to defray their expenses and derive a surplus or profit. The problem arising from this is that without explicit charges or the usual sales receipts, it is difficult to value the output of the services provided to their customers and depositors.<sup>2</sup>
14. The 1968 SNA avoided the problem by creating a notional industry (i.e. imputed bank service charge) to which the net interest received by banks is attributed. However, in view of its importance, the 1993 SNA recommended that these services be estimated explicitly and referred to as financial intermediation services indirectly measured (FISIM).
15. DOS’s existing methodology for estimating imputed bank service charge is consistent with the recommendations of the 1968 SNA. The methodology also enables DOS to estimate the total value of FISIM, but additional

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<sup>2</sup> In fact, economic statisticians cannot even agree on the exact nature of the services provided. Some statisticians argue that the provision of loans is the only service and output of banks. Others disagree and consider that banks are providing their depositors an important service. See “Financial Services: The Silent Engine” in the 21 December 1998 issue of *Business Week*.

development work is required to allocate FISIM among the various users. A more elaborate discussion of FISIM is provided in an article “Financial Services Indirectly Measured” in the Oct 1998 issue of *Statistics Singapore Newsletter*. The article is also available on DOS’s website at <http://www.singstat.gov.sg>.

16. The second type of financial services is mainly auxiliary financial services, e.g. currency exchange, providing investment advice, management of investment portfolios, and the purchase or sale of securities. These services are usually priced explicitly, based on a fee or a commission. The output is then valued on the basis of the fees or commissions received, much in the same way as other non-financial services. Financial institutions that engaged in these activities include commercial banks, merchant banks, foreign exchange dealers, stockbrokers, investment advisers, investment holding companies and others.

17. As these services are provided on the basis of explicit charges, their measurement poses no conceptual problems. But regular, reliable and timely data on the fees and commissions received from these services are not usually available. Many statistical agencies, including those which are statistically advanced, e.g. the Australian Bureau of Statistics and the US Bureau of Economic Analysis, have resorted to the use of input measures such as the number of employee hours to estimate output.

18. While the use of input measures to estimate the output of these fee-based services is expedient and necessitated by the lack of data, they are widely recognised to be inappropriate.<sup>3</sup> Recognising this inadequacy, DOS initiated a Survey of Financial Institutions in 1967 to collect detailed income and expenditure data of financial institutions. This Survey was initially conducted on a five-yearly basis. With effect from 1984, it was conducted annually. The Survey is now conducted by MAS which also launched the quarterly Survey of Financial Institutions in 1988. While the coverage and scope of the quarterly Survey is smaller than the annual Survey, it provides more timely quarterly data on commercial banks, merchant banks, ACUs and finance companies.

19. But because the quarterly data of stockbrokers and investment advisers were initially inadequate, DOS had to use proxies and input-based measures for its current quarterly growth estimates. With the improvements in the data quality of the quarterly Survey of stockbrokers and investment advisers, the current estimates of stockbrokers and investment advisers can be replaced with more appropriate output-based measures, i.e. the fees and commissions which they received. Additional details of the new methodology are provided in the next Section.

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<sup>3</sup> The article “Financial Services: The Silent Engine” in the 21 December 1998 issue of *Business Week* noted this, and criticised the US Bureau of Economic Analysis for using the “number of employee hours worked” to measure the output of the banking sector. As the article puts it, with this measure of output, “productivity - which is output divided by hours - is effectively defined to be flat”.

20. The third type of financial services is essentially insurance services. DOS and the Insurance Department of MAS agree that the 1993 SNA's revision in the conceptual treatment of insurance services would yield a more appropriate measure of their output. The adoption of this conceptual change would be carried out through a revised methodology for measuring the output of insurance services. This methodology will be discussed in depth in the next Section.

#### IV. THE NEW METHODOLOGY

21. As outlined above, the new, improved methodology for estimating the value-added of the financial services sector affects three major components: stockbrokers, investment advisers (fund management) and insurance services. The new methodology for estimating the value-added of the first two activities, i.e. stockbrokers and investment advisers (including fund managers), is based on improved quarterly data sources on fees and commissions received. The proposed change in methodology for the third component, i.e. insurance services, is, however, motivated by conceptual changes introduced in the 1993 SNA.

##### **Stockbrokers**

22. The value-added for stockbrokers is presently estimated using the volume of stock transactions in the Stock Exchange of Singapore (SES) and, consequently, does not take into account off-SES stock transactions, i.e. the buying and selling of shares in other countries by Singapore stockbrokers. This approach under-estimates (over-estimates) the growth in the value-added of stockbrokers when off-SES share trading grows faster (slower) than SES share trading.

23. Prior to the onset of the financial crisis, there was an increasing trend in the volume and value of off-SES transactions. The value of off-SES transactions increased by 15% in 1H97 (see Table 1). However, with the onset of the financial crisis, these transactions had contracted substantially, declining by 35 and 50 per cent respectively in 1H98 and 2H98. In comparison, SES stock transactions declined by only 10 and 18 per cent during the two corresponding periods.

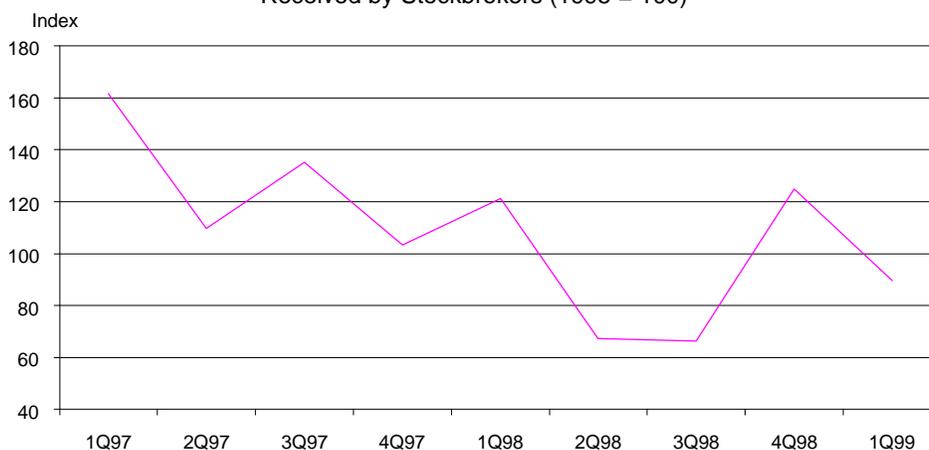
**Table 1**  
**Stocks/Shares Transactions Handled by Our Stockbrokers, 1997 & 1998**

	Off-SES Transactions		SES Transactions	
	Value Index (1995=100)	% Growth	Value Index (1995=100)	% Growth
1H97	178.7	15.4	115.2	4.8
2H97	173.2	1.8	119.5	64.9
1H98	115.5	-35.4	104.3	-9.6
2H98	86.1	-50.3	98.4	-17.7

Source: MAS

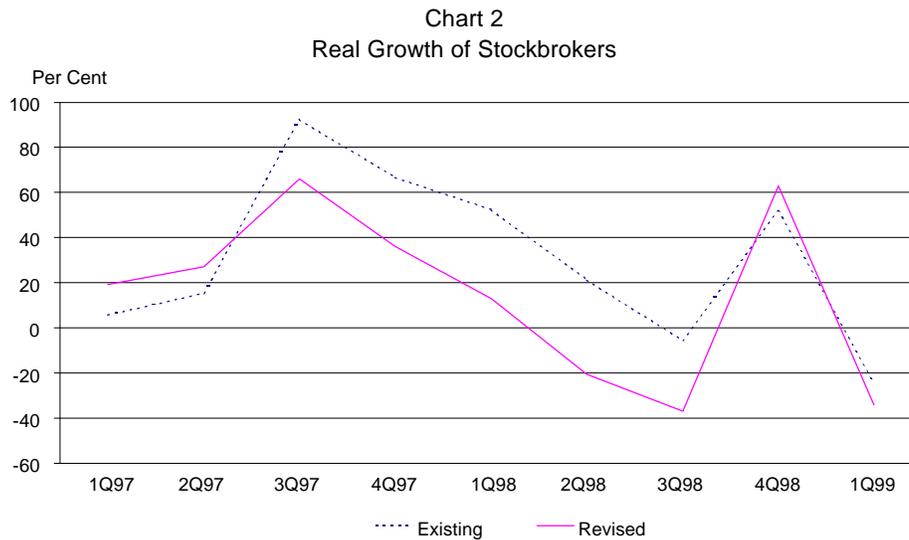
24. That off-SES trading does not necessarily follow the same trend as SES trading means that the existing methodology may not reflect accurately the performance and growth of stockbroking activities in Singapore. For example, the rapid contraction of off-SES trading in 2H97 means that the existing methodology over-estimated the value-added of stockbrokers in that period. This would be remedied if net fees and commissions received by stockbrokers were used as the basis for estimating their value-added. Net fees and commissions would reflect all transactions handled by the stockbrokers, including off-SES transactions (see Chart 1).

Chart 1  
Value Index on Net Fees and Commissions  
Received by Stockbrokers (1995 = 100)



25. For the period 3Q97 to 2Q98, the value of net fees and commissions received by stockbrokers had declined more rapidly than the value of SES transactions, reflecting the more rapid contraction of off-SES transactions. The implementation of the new methodology based on fees and commissions received would therefore result in the downward revision of the value-added of stockbrokers. With its implementation, real growth for stockbrokers in 1997,

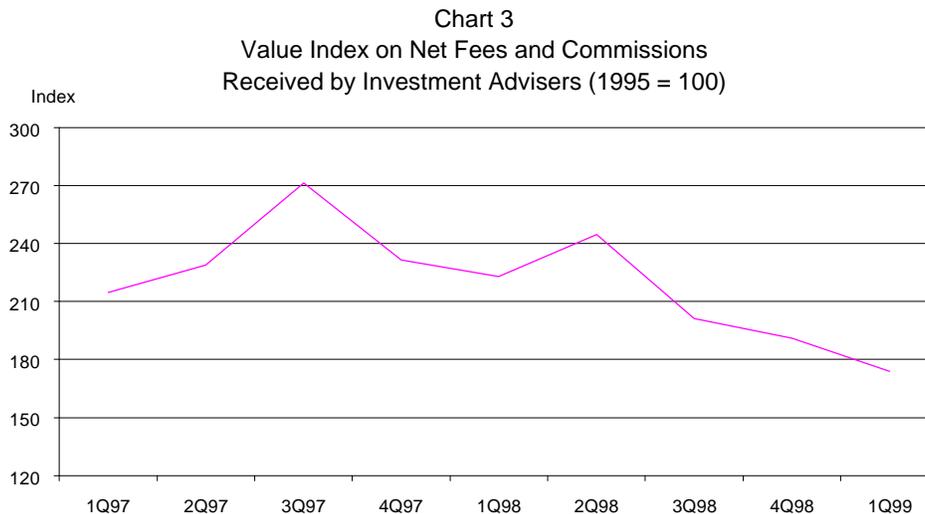
1998 and 1Q99 would be revised downwards by 3.4, 27 and 9.8 percentage points respectively (Chart 2).



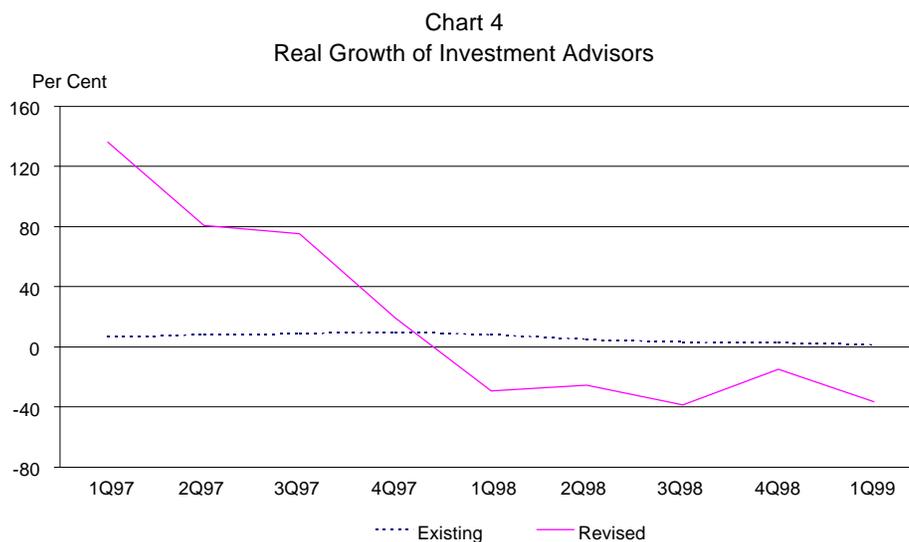
### Investment Advisers

26. The value-added of investment advisers, including fund managers, is currently estimated using an input-based measure, i.e. employment. As discussed above, the appropriate output-based measure to estimate their value-added is net fees and commissions received.

27. Unlike employment, fees and commissions are more reflective of the performance of investment advisers. Data on the fees and commissions received by investment advisers showed that these continued to grow robustly in 3Q97, despite the onset of the financial crisis in June 1997 (Chart 3).



28. Consequently, the existing methodology under-estimated real growth for investment advisers by as much as 68 percentage points in 1997 (see Chart 4). However, by 1Q98, the fees and commissions they received contracted substantially given the bearish stock markets sentiments. The existing methodology would then over-estimate the real growth of investment advisers, including fund managers, by 33 and 37 percentage points in 1998 and 1Q99 respectively.



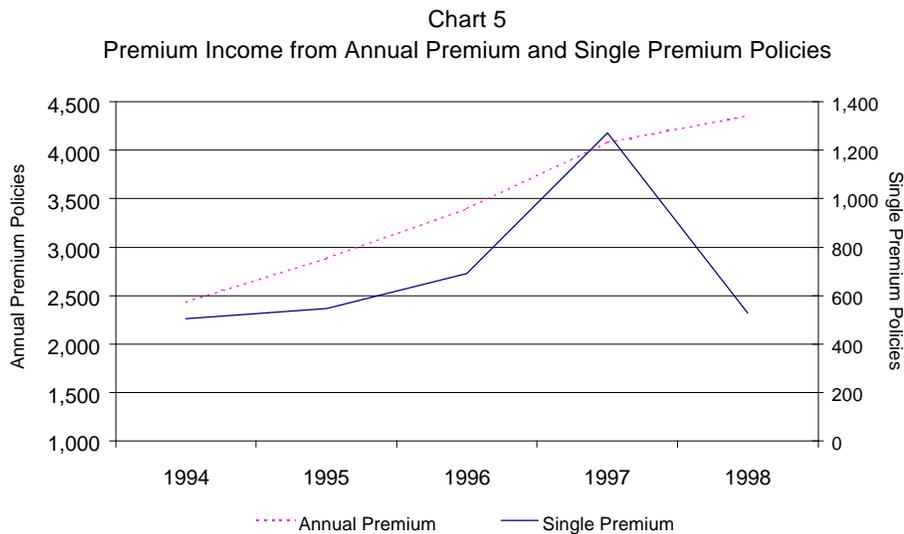
### **Insurance Services**

29. Insurance companies provide services to a customer (or policyholder) by assuming a certain amount of the customer's risk against the occurrence of an unfortunate or undesirable event. In assuming the risk, the insurer agrees to pay a certain amount of money (or claim) if the event arises. In return, the policyholder pays an amount of money (or premium) to the insurer.

30. As with financial intermediation services, the services provided by insurers to their policyholders are not explicitly charged and have to be estimated indirectly. They are currently estimated on the basis of premium income from annual premium policies and annuities for life insurance, and premiums less claims for general insurance. With the advent and increasing popularity of single premium policies underwritten by life insurers, the existing methodology for estimating the output of life insurers has become irrelevant since it does not take into account the claims incurred and the premium income received from these policies.<sup>4</sup>

<sup>4</sup> A single premium policy is a life insurance policy where its policyholder has to make only one premium payment at the start of the policy.

31. Premium income of single premium (SP) policies tends to be more volatile compared to that of annual premium (AP) policies (Chart 5). The sharp increase in new premium income for SP policies to \$1.3 billion, from about \$690 million in 1996, is largely due to the implementation of the CPF Investment Scheme (CPF-IS) at the beginning of 1997. The CPF-IS Scheme enables CPF members to use their CPF funds to buy endowment, annuities and investment-linked policies.



32. Without accounting for the premium income of SP policies and the claims incurred, the output of life insurers will not be properly reflected. This would be remedied with the newly available quarterly data sources from MAS on total premium income and claims incurred by insurers. Total premium income of life insurers comprises premium income from annual premium policies, single premium policies, and annuities.

33. However, even with their inclusion, the existing methodology fails to reflect the importance of the management of reserves by insurers. In the insurance industry, reserves represent debts to policyholders and are the industry's major liabilities. The effective management of reserves is crucial to the competitiveness and profitability of insurers.

34. While the management and investment of reserves by an insurance company might not be viewed as a service provided to policyholders, the income generated by their investment has a considerable influence on the level of premiums charged. The 1993 SNA acknowledges explicitly the role of investment earnings in insurance:

“Premiums are usually paid regularly, often at the start of an insurance period, whereas claims fall due later, in the case of life

insurance many years later. In the time between the payment of premium being made and the claim being receivable, the sum involved is at the disposal of the insurance corporation to invest and earn income from it. The income thus earned allows the insurance corporations to charge lower premiums than would be the case otherwise. An adequate measure of the service provided must take account of the size of this income as well as the relative size of premiums and claims.” – 1993 SNA, Annex IV, para 15.

35. In line with the above, the 1993 SNA recommended the inclusion of investment income and changes in insurers’ reserves in the computation of value-added, in addition to the existing methodology of using premiums earned and claims due. The Insurance Department, MAS agrees with DOS that this recommendation of the 1993 SNA would reflect more closely the performance of the insurance industry.

36. The implementation of this methodology would result in significant changes in the value-added of both life and general insurance (see Charts 6 & 7). For example, the existing methodology under-estimated the 1997 real growth of life and general insurance by 99 and 1.5 percentage points respectively. The very substantial upward revision in the real growth of life insurance was due to the very robust growth of investment income and premium incomes from both single and annual premium policies. Investment income and premium incomes increased by 28 and 30 per cent respectively. The overall growth in the insurance industry was under-estimated by 42 percentage points in 1997.

Chart 6  
Real Growth of Life Insurance

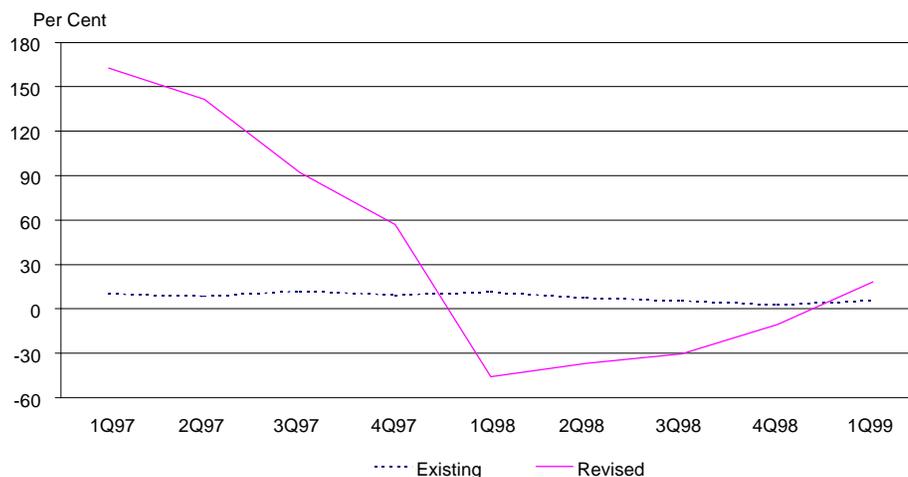
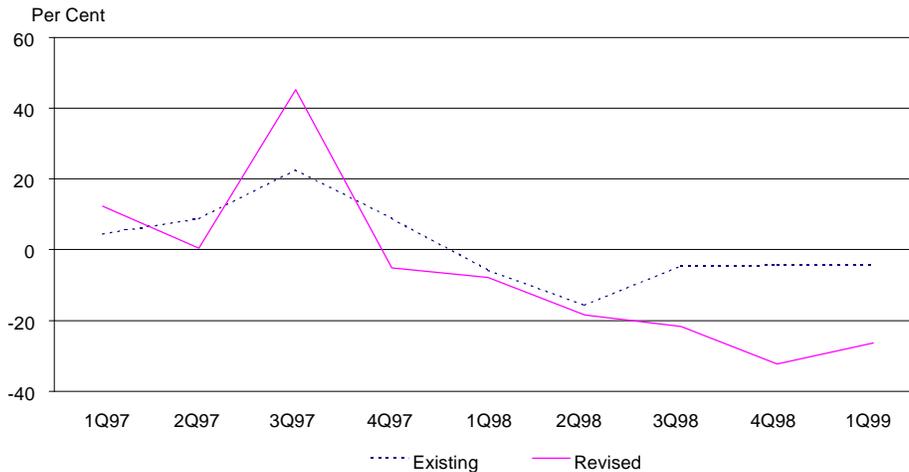


Chart 7  
Real Growth of General Insurance



37. The insurance industry was adversely affected with the onset of the financial crisis. The new methodology reflected this more accurately and showed that the decline in real output for life and general insurance was underestimated by 39 and 12 percentage points (i.e. growth was over-stated). The decline in output was due largely to the sharp fall in premium income together with a significant increase in claims (see Table 2). Consequently, the growth of the insurance industry was over-estimated by 25 percentage points in 1998.

**Table 2**  
**Selected Key Indicators on Insurance Activities, 1Q97 to 1Q99**

	S\$ million										
	1997					1998					1999
	1st Qtr	2nd Qtr	3rd Qtr	4th Qtr	Annual	1st Qtr	2nd Qtr	3rd Qtr	4th Qtr	Annual	1st Qtr
<b>Life Insurance</b>											
Total Premiums	1,260	1,469	1,345	1,507	5,580	1,218	1,279	1,188	1,403	5,086	1,417
Claims Due	254	285	412	509	1,460	475	399	451	460	1,785	446
Investment Income	132	163	204	181	680	214	229	257	226	925	187
Increase in Reserves	588	686	628	702	2,604	623	655	609	719	2,606	796
<b>General Insurance (includes Captives)</b>											
Total Premiums	543	615	651	604	2,413	541	551	562	534	2,188	491
Claims Due	242	247	283	315	1,086	278	309	348	388	1,323	298
Investment Income	52	66	72	89	279	77	76	85	84	322	50
Increase in Reserves	33	93	23	102	251	41	38	-26	34	87	27

Source: MAS

38. In 1Q99, the output of life insurance increased robustly as premium income increased by 13 per cent over the same period a year ago. The existing methodology under-stated the real growth of life insurance by 19 percentage points in 1Q99. On the other hand, the output of general insurance continued to decline as premium income declined 6 per cent. The real growth of general insurance was over-stated by 22 percentage points. The growth in the overall insurance industry was over-stated by 0.2 percentage points.

## V. IMPACT ON GDP ESTIMATES

39. In summary, the proposed methodological changes would result in the revision of the value-added of stockbrokers, investment advisers and insurance corporations. Taking all the revisions together, the proposed methodological changes would result in an upward revision of the growth of the financial services sector in 1997 by 8.5 percentage points, and real GDP by 1.0 percentage point (see Table 3).

**Table 3**  
**Comparisons of Existing and Revised GDP Estimates, 1Q97 to 1Q99**

	1997					1998					1999	
	1st Qtr	2nd Qtr	3rd Qtr	4th Qtr	Annual	1st Qtr	2nd Qtr	3rd Qtr	4th Qtr	Annual	1st Qtr	
	Percentage Change											
<b>Financial Services</b>												
Existing Estimates	13.5	18.5	17.0	12.2	15.3	5.0	-3.9	-2.2	-0.5	-0.5	-5.3	
Revised Estimates	27.9	30.1	24.6	13.1	23.8	-6.7	-13.1	-11.8	-3.0	-8.8	-8.4	
<b>Financial &amp; Business Services</b>												
Existing Estimates	10.4	11.9	13.1	9.9	11.3	6.6	2.2	1.8	2.1	3.1	-0.6	
Revised Estimates	16.6	17.0	16.5	10.3	15.1	1.0	-2.5	-2.8	0.9	-0.9	-1.9	
<b>Overall GDP</b>												
Existing Estimates	4.2	8.6	11.1	7.9	8.0	6.2	1.6	-0.6	-0.8	1.5	1.2	
Revised Estimates	5.9	10.1	12.0	8.0	9.0	4.5	0.2	-1.9	-1.1	0.3	0.8	

40. For 1998, with the new methodology reflecting more accurately the adverse impact of the financial crisis, the proposed methodological changes would result in significant downward revisions in the growth of financial services and overall GDP. The real growth of the financial services sector would be revised downwards by 8.3 percentage points. This would result in the downward revision of overall GDP growth by 1.2 percentage points for 1998. Real GDP growth for 1998 would be 0.3 per cent, instead of the currently estimated growth of 1.5 per cent.

41. Similarly for 1Q99, the methodological changes would result in the downward revision in the growth of the financial services sector and overall GDP by 3.1 and 0.4 percentage points respectively. Real GDP growth would be estimated at 0.8 per cent instead of the current estimate of 1.2 per cent.

42. The improved methodology for estimating the value-added of stockbrokers and investment advisers is essentially similar to the existing methodology used by DOS in its annual routine revisions or benchmarking exercises. These exercises, which are in line with international practice, incorporate more complete data from annual surveys to revise and benchmark the quarterly value-added estimates.<sup>5</sup> The revised estimates are released through annual issues of the *Economic Survey of Singapore*. The implementation of the new methodology for stockbrokers, investment advisers and insurance corporations could be expected to reduce significantly the extent of these routine revisions. As the 1998 *Economic Survey of Singapore* has already incorporated data from the 1996 annual Survey of Financial Institutions, the adoption of the new methodology will not result in any revision of the estimates of the value-added for stockbrokers and investment advisers for periods prior to 1997.

43. However, as the revised methodology for estimating the value-added of insurance services arose from conceptual changes, its adoption will result in the revisions of the historical estimates of the industry's value-added (see Table 4). The inclusion of investment income and changes in reserves in the value-added of the insurance industry has, as expected, resulted in greater volatility of the estimated annual growth rates. These growth rates are, however, more reflective of the industry's performance and, viewed from a longer perspective, the volatility will even out. For example, the revised value-added estimates yield an average growth of 15 per cent for the industry during 1990-1996 compared to 14 per cent on the basis of the existing estimates.

**Table 4**  
**Real Value Added Estimates of Insurance**

	Per Cent					
	1991	1992	1993	1994	1995	1996
<b>Existing Estimates</b>						
Life Insurance	17.8	21.0	20.2	22.1	16.0	11.8
General Insurance	4.3	13.5	16.1	11.7	3.4	6.0
Total	8.2	15.8	19.6	19.2	10.7	11.1
<b>Revised Estimates</b>						
Life Insurance	1.4	97.9	2.6	1.1	1.5	12.9
General Insurance	-16.3	4.5	58.6	49.2	-3.4	-8.1
Total	-7.4	45.5	24.2	26.3	1.9	5.0

<sup>5</sup> The current quarterly GDP growth estimates are preliminary estimates based on the best available data at the time of release.

## VI. CONCLUSION

44. Financial services sector growth estimates based on the existing methodology do not reflect adequately the underlying performance of the stockbroking, investment advisory and insurance industries. The proposed methodological changes would correct this and result in more accurate estimates of quarterly growth rates, and therefore reduce the extent of the routine revisions to GDP estimates in connection with the annual *Economic Surveys of Singapore*. DOS will release GDP estimates based on the new methodology with effect from the release of the *Economic Survey of Singapore, Second Quarter 1999*.

45. In implementing the above methodological changes, DOS recognises the rapid changes and development in the Singapore economy, in particular, new and emerging economic activities. The on-going review and improvement in methodology would ensure the continuing relevance and reliability of Singapore's economic statistics.

SINGAPORE DEPARTMENT OF STATISTICS

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