

Seasonal Variations in Scheduled Banks' Activity

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A number of variables in an economy may be affected by seasonal influences such as weather conditions, trade practices, traditions, customs, etc. Since these variations recur year after year with an approximately constant degree of relative intensity and regularity, it is possible to make predictions about such seasonal variations.

The present study attempts to measure the seasonal variations in some major balance sheet items of scheduled banks in Pakistan. The Link Relatives Method has been used in the construction of the seasonal indices. In most cases, the arithmetic mean of the link relatives is taken for the derivation of the index. In cases where the variation in the link relatives is significant, the median is used for the construction of the index. The study consists of three sections. The first section presents the indices of the balance sheet items of scheduled banks and relates some of these indices to each other and to certain important monetary variables. The second section presents the seasonal variations in the allocation of scheduled bank lending to various sectors of the economy. The third section spells out some of the implications of these indices. The study covers the period 1953-60 except for a few items¹. A period of only 8 years cannot be considered long enough to enable us to predict with confidence the seasonal variations in the future. But these indices may give some indication of the nature of seasonal movements in the activity of scheduled banks in Pakistan.

SECTION I: SEASONAL VARIATIONS IN ASSETS AND LIABILITIES OF SCHEDULED BANKS

Table 1 presents the seasonal indices for most of the balance sheet

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¹. These are:

- a) Treasury bills
- b) Investments in foreign securities and shares
- c) Investments in 'other' (private) securities and shares.

For both a) and b) the period covered is 1955-60. For c) the period covered is 1954-60.

TABLE 1

SEASONAL INDICES OF BALANCE SHEET ITEMS OF SCHEDULED BANKS
IN PAKISTAN

Groups	Items	March	June	September	December
Liabilities					
A	1. General demand deposits ^a	100	101	100	99
	2. Demand deposits from banks	100	106	105	89
	3. General time deposits ^a	98	102	102	98
B	4. Time deposits from banks ^b	88	106	102	104
C	5. Borrowings from the State Bank of Pakistan ^b	142	25	23	210
	6. Borrowings from banks	121	58	78	143
Assets					
A	7. Balance with the State Bank of Pakistan	80	126	105	89
	8. Net balances abroad ^{c, b}	93	112	105	90
	9. Investments in treasury bills ^b	95	123	97	85
D	10. Investments in government securities ^d	98	98	103	101
B	11. Investments in foreign securities and shares	99	101	97	103
	12. Gold, silver, notes and coins	87	105	86	122
C	13. Investments in 'other' securities and shares	100	99	96	105
	14. Bills purchased and discounted	105	87	91	117
	15. Advances ^e	108	93	93	106

a. Excluding inter-bank deposits.

b. Fluctuation in the link relatives being wide in this case, indices are based on the median value. Indices based on the average, as in other cases, are:

4. 88, 104, 85, 123

5. 163, 11, 16, 210

5. 84, 123, 105, 88

9. 90, 126, 103, 81

c. Net balances abroad = balances held abroad *minus* borrowings from banks abroad.

d. Government securities = Central *plus* provincial government securities

e. Includes advances to 'others' and excludes advances to banks.

Based on the consolidated balance sheets of all scheduled banks at the end of each quarter as published in the State Bank of Pakistan, *Banking Statistics of Pakistan* (Karachi: State Bank of Pakistan, published annually), Table IV.

items of scheduled banks². Items having similar movements have been arranged together. Group A indicates that in June and September all demand deposits and non-bank time deposits rise and so do the reserves of banks, their net balances abroad and investments in treasury bills. Having exactly opposite movements relative to group A is group C. Scheduled bank credit to the private sector³ is high in March and December when scheduled bank borrowings from the State Bank and other banks also increase. Time deposits from banks (Group B: item 4) move in a way different from the movement of other deposits, behaving in more or less the same way as vault cash (Group B: item 12)⁴ and investments in foreign securities (Group B: item 11) having relatively smaller values in March and September and relatively higher values in June and December. Investments in government securities (Group D: item 10) do not seem to fluctuate much but still have slightly higher values in September and December relative to those in March and June.

The link relatives on which these indices are based show some fluctuation from year to year. In general, however, there is a great deal of consistency in the seasonal movements of the link relatives throughout the years considered. Besides, the variation that exists in the link relatives for any quarter seems to be random between years. This may be considered as indicating that there is no evidence of a change in the seasonal pattern. In some items, however, the link relatives indicate an increasing or decreasing amplitude in certain quarters for some years, but the period is too short, except for bills (Table 1: item 14), to enable us to predict a consistent change in the direction or amplitude of the seasonal activity⁵. The lapse of a few more years may make this change clearer.

². One major item left out is "capital and reserves" because a seasonal index of this item is not very meaningful.

³. Items 13, 14 and 15 of Table 1 represent credit to the private sector.

⁴. Gold holdings of scheduled banks are generally very small—less than one-fourth of one per cent of total assets. Separate data for silver holdings are not available, but these too are likely to be negligible.

⁵. The following items show the change in the link relatives pointed out in the text:

General demand deposits (Table 1: item 1): There is a declining trend in September and December and a rising trend in June after 1958:

	Link Relatives		
	June March	September June	December September
1958	99.4	105.3	98.7
1959	105.6	104.4	94.3
1960	112.2	93.8	93.8

Borrowings from the State Bank of Pakistan (Table 1: item 5): There is a declining trend in June and a rising trend in September after 1958:

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In most items, the seasonal pattern seems to be quite regular even when we consider the occurrence of peaks and troughs (Table 2). Out of the fifteen items considered, eight have their peaks in one quarter in five or more years and their troughs in some other quarter in four or more years. The items that show significantly regular seasonal variations are: general time deposits (Table 2: item 3); borrowings of the scheduled banks from the State Bank (Table 2: item 5) and other banks (Table 2: item 6); balances with the State Bank (Table 2: item 7); net balances abroad (Table 2: item 8); cash (Table 2: item 12); and, most of the credit to the private sector (Table 2: items 14 and 15). Items that seem to have no regularity at all in the occurrence of peaks are general demand deposits (Table 2: item 1) and demand deposits from banks (Table 2: item 2). In all the other cases, there is some regularity in the occurrence of seasonal variations.

In two items, there seems to be a shift in the occurrence of troughs during the last few years. General demand deposits, which had their trough in September from 1954-56, had their trough in December from 1958-60. Balances with the State Bank of Pakistan also had their trough in September from 1954-57 and in December from 1958-60.

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Link Relatives

	June March	September June
1958	49.0	56.8
1959	7.6	208.1
1960	3.1	958.3

Investments in other securities and shares (Table 1: item 13): There is a slight upward movement in March and a slight downward movement in December after 1958:

Link Relatives

	March December of previous year	December September
1958	99.5	100.7
1959	101.1	99.0
1960	101.5	97.9

Bills purchased and discounted (Table 1: item 14): In December, after 1956, there is a declining trend. This decline is distributed in a random way over June and September:

Link Relatives

	December September
1956	165.8
1957	137.2
1958	135.2
1959	124.4
1960	118.0

TABLE 2
PEAKS AND TROUGHS IN THE SEASONAL FLUCTUATIONS

Schedule banks' balance-sheet items	Maximum occurrence of peaks	Maximum occurrence of troughs
Liabilities		
1. General demand deposits (8)	2 (each quarter)	4(D)
2. Demand deposits from banks (8)	2 (each quarter)	3(S) & 3(D)
3. General time deposits (8)	6(J)	5(D)
4. Time deposits from banks (8)	3(J) & 3(D)	3(M)
5. Borrowings from the State Bank of Pakistan (8)	7(D)	5(J)
6. Borrowings from banks (8)	5(D)	5(J)
Assets		
7. Balances with the State Bank of Pakistan (8)	8(J)	4(S)
8. Net balances abroad (8)	5(J)	4(S)
9. Investments in treasury bills (6)	3(M) and 3(J)	3(S)
10. Investments in government securities (8)	6(S)	3(J)
11. Investments in foreign securities and shares (6)	3(J)	4(M)
12. Gold, silver, notes and coins (8)	6(D)	6(M)
13. Investments in 'other' securities and shares (7)	3(D)	3(M)
14. Bills purchased and discounted (8)	6(D)	5(J)
15. Advances (8)	7(D)	8(J)

The figures in parentheses after each item show the number of years considered in this study as already pointed out in the text (*See*, p. 422 and footnote 1).

The letters in parentheses in the peaks and troughs columns indicate quarters: M=March; J=June; S=September; D=December.

Based on raw data from which the indices of Table 1 are computed.

Table 3 indicates that during the first and the last quarters of the year non-bank demand deposits tend to decline relative to money supply (item 4). Besides, liquid assets (item 3) also decline during the same period. But bills purchased and discounted and advances (item 2), both of which comprise most of the credit to the private sector, rise in March and December. Total time deposits relative to total demand deposits seem to show little variation as is also evident from seasonal indices of demand deposits given in Table 1.

TABLE 3

SEASONAL VARIATIONS IN THE RATIOS OF SOME MONETARY VARIABLES

	March	June	September	December
1. Total time deposits to total demand deposits ^a	98	100	101	101
2. Bills purchased and discounted <i>plus</i> advances to total deposits ^b	108	91	92	109
3. Total liquid assets ^c to total liabilities subject to reserve requirements	95	103	103	100
4. General demand deposits to money supply ^d	98	101	104	97

a. Total demand deposits include general as well as inter-bank deposits. The same is true for total time deposits.

b. Total deposits = total demand and total time deposits as defined in footnote a above.

c. Total liquid assets = gold + silver + notes and coins + balances with the State Bank + central and provincial government securities + treasury bills + 'other' securities. This definition of liquid assets is based on Clause 8 of the Banking Companies (Control) Act, 1948.

d. General demand deposits exclude inter-bank deposits. General demand deposits and currency in circulation both constitute parts of the money supply as defined by the State Bank (currency in circulation + general demand deposits + 'other deposits' excluding IMF account No. 1 and United States counterpart funds).

Based on data from the State Bank of Pakistan, *Banking Statistics of Pakistan*, and *Report[s] on Currency and Finance* (Karachi: State Bank of Pakistan, published annually).

SECTION II: SEASONAL FLUCTUATIONS IN THE ALLOCATION OF SCHEDULED BANK ADVANCES

We have already shown the seasonal fluctuations in advances to the non-bank sector (Table 1: item 15), bills purchased and discounted (Table 1: item 14) and investments in 'other' (private) securities (Table 1: item 13), all three of which combined constitute scheduled bank credit to the private sector. Of the total credit to the private sector, 80.9 per cent was in the form of advances on March 31, 1953 and 87.2 per cent on December 31, 1960. Also 16.4 per cent of the credit was in the form of bills purchased and discounted on March 31, 1953 and 12.0 per cent on December 31, 1960. Investments in 'other' securities comprised 2.7 per cent of the credit to the private sector on March 31, 1953 and 0.8 per cent on December 31, 1960. Since advances represent the predominant part of bank credit, we show, in this section, the seasonal fluctuations in the allocation of these advances to various non-bank sectors of the economy.

Advances to the commercial sector (Table 4: item 2) which have comprised about 40—70 per cent of total advances to the non-bank sector during the period of our study have a peak in the fourth quarter and start falling after that until they reach their low in the second quarter of the next year. Advances to the manufacturing sector (Table 4: item 8), the second major beneficiary of bank advances now receiving about 30—35 per cent of total advances, are high in the first quarter, but fall thereafter and start rising again in the last quarter after reaching a trough in the third quarter. The other non-bank sectors receive an almost insignificant amount of scheduled bank advances, and, therefore, the seasonal movements in the credit to these sectors do not affect the seasonal movement of the total advances to the non-bank sectors.

More than 60 per cent of scheduled bank advances to the non-bank sectors are extended against the hypothecation of merchandise. The movement in the seasonal index of these advances against merchandise (Table 5: item 3) is the same as the movement in total advances to the non-bank sector (Table 1: item 15). Advances against machinery and fixed assets and 'others' (Table 5: items 4 and 7) which constitute about 15—20 per cent of total advances have higher values in the second and third quarters when advances against merchandise are low. Advances against stock exchange securities (Table 5: item 2) which constitute about 5—10 per cent of total advances have a higher value in the first quarter; thereafter advances against these decline until they reach their trough in the last quarter. Advances against other items are relatively insignificant and the seasonal movements in these are not very important.

TABLE 4
SEASONAL INDICES OF ADVANCES TO 'ECONOMIC GROUPS'

	March	June	Sept.	Dec.
1. Agriculture, forestry, hunting and fishing ^a	93	75	112	120
2. Commerce	111	86	90	113
3. Construction	100	104	98	99
4. Electricity, gas, water and sanitary services ^a	83	105	99	113
5. Mining and quarrying ^a	88	109	114	89
6. Services ^a	90	104	112	94
7. Employees & services not adequately described	96	105	105	94
8. Manufacturing	118	101	86	95
9. Transport, storage and communications ^a	104	102	95	99

a. As fluctuation in the link relatives is wide, indices in this case are based on the median. Indices based on the average, as in other cases, are:

1.	101,	79,	112,	108
5.	101,	100,	84,	115
6.	54,	122,	131,	93
9.	104,	108,	96,	92

In the case of item 4, index based on the average is meaningless as the average of the link relatives corrected for trend yields a negative value for March.

Based on data from State Bank of Pakistan, *Banking Statistics of Pakistan, op. cit.*, Table V (i).

TABLE 5
SEASONAL INDICES OF ADVANCES ACCORDING TO SECURITIES PLEDGED

	March	June	Sept.	Dec.
1. Precious metals	95	97	107	101
2. Stock exchange securities	128	97	88	87
3. Merchandise	113	89	89	109
4. Machinery and fixed assets	100	104	101	95
5. Real estate	97	95	102	106
6. Financial obligations	105	97	101	97
7. Others	92	108	102	98

Based on data from the State Bank of Pakistan, *Banking Statistics of Pakistan, op. cit.*, Table V (ii)

SECTION III: SUMMARY AND CONCLUSIONS

What actually do the above indices reveal about the scheduled bank activity and why is the seasonal pattern as it is? We cannot consider these questions in detail; however, a few observations based on the above indices must be made.

March and December seem to be the quarters in which the activity of scheduled banks increases and hence these quarters may be termed as the busy season. June and September when scheduled bank activity declines may be termed as the slack season. Credit to the private sector (Table 1: items 13, 14 and 15) fluctuating seasonally due to factors exogenous to the banking system seems to be the element which sets the seasonal pattern for most of the balance sheet items. The two major crops of Pakistan, jute and cotton, are harvested and marketed around July and October, and, therefore, the demand for credit from the commercial sector is high in the last quarter of a year and the first quarter of the following year. The demand for loans from the manufacturing sector also starts increasing in the last quarter, reaches a high in the first quarter of the following year and thereafter starts declining until it reaches a low in the third quarter⁶.

This change in demand for credit in the busy and the slack seasons is also reflected in the rates of interest. Since June 1958, the State Bank has published semi-annual distribution of the volume of advances of the scheduled banks by interest charged. Table 6 gives some statistics of these distributions. During 1958-61, the only period for which data are available, the average rate of interest is lower in June (slack season) relative to December (busy season) and the percentage of loans given below the bank rate is lower in December than in June.

Non-bank demand deposits, however, do not tend to show a significant seasonal variation. They are not high in the busy season in spite of the increase in advances because payments to the agricultural sector by the commercial and the industrial sectors are not made by a transfer of deposits. Instead, currency moves to the rural sector, and the ratio of deposits to money supply, therefore, declines slightly in the busy season (Table 3: item 4).

When the demand for advances rises in the busy season, banks borrow heavily from the State Bank to build up their cash-in-vault in order to meet the public demand for cash for payments to the non-banking agricultural sector. Cash-in-vault of scheduled banks is, therefore, high in December

⁶. Credit to the private sector starts rising in November, is at its peak in January (110) and starts declining gradually after that. The index is at its average level in April and lowest in July (91). See, M.U. Chapra, "Effectiveness of Bank Rate Instrument in Pakistan," *The Pakistan Development Review*, Spring 1962, Table II.

TABLE 6
SEASONAL VARIATIONS IN THE RATES OF INTEREST
CHARGED BY THE SCHEDULED BANKS

Date		Average	Per cent of total advances made below bank rate ^a
1958	June	4.19	16.28
	December	4.21	13.81
1959	June	4.96	21.84
	December	5.14	13.74
1960	June	5.15	16.75
	December	5.28	12.94
1961	June	5.14	22.59
	December	5.26	17.29

a. The cumulative frequency up to, but not including, 3 per cent for June and December 1958, 4 per cent thereafter.

Source: R.C. Porter, *Liquidity and Lending: the Volume of Bank Credit in Pakistan*. (Karachi: Institute of Development Economics, forthcoming Monograph No. 10).

because of borrowings from the State Bank. These cash holdings decline in March, when there is still the busy season, but, in anticipation of the slack season, banks do not borrow as much from the State Bank and other banks as they do in December. In June and September (slack season) borrowings of banks from the State Bank and other banks decline and so does their cash-in-vault.

Investments of banks in government securities (Table 1: item 10) are a little high in September when the demand for advances from the private sector has not yet increased. The security holdings of banks decline slightly in December (busy season). They remain at this low level in June although it is the slack season⁷. Scheduled bank holdings of treasury bills (Table 1: item 9) are high in June (slack season) when security holdings are low, but treasury bill holdings of banks are relatively very low and so their high level

7. A monthly index gives a more vivid picture. Security holdings of banks go up to 103 in July (slack season) and stay there, with minor fluctuations, until December. See, M.U. Chapra, *op. cit.*, Table II.

in June does not significantly affect the index of total bank lending to the government. The pattern of seasonal movements in the total liquid assets of banks is almost the same—low values in the slack season and high values in the busy season (Table 3: item 3).

Why is it that credit to the manufacturing sector is also subject to seasonal fluctuations very similar in nature to credit to the commercial sector. This may be primarily due to the fact that the textile industries (both jute and cotton) dominate the industrial scene. The value added of the textile industries comprised 55.5 per cent of the total value added of the manufacturing industries in 1953 and 47.7 per cent in 1959/60⁸. However, as the industrial sector becomes more diversified, the seasonal movements in the credit to the manufacturing industries may decline. Since the manufacturing sector has already started to receive an increased proportion of credit to the private sector⁹, such a diversification will reduce the amplitude of the seasonal variations in the advances of scheduled banks. Bills, which show a greater seasonal variation than advances, have, as already suggested, started declining in importance. December, when bills hit their peak, has experienced a declining trend (footnote 5) and if this continues bills will also show less seasonal variation. If both bills and advances (forming the bulk of scheduled bank credit to the private sector) show less seasonal variation, there is strong reason to believe that scheduled bank activity will become less subject to seasonal variations in the future.

⁸. Central Statistical Office, *Pakistan Statistical Year Book, 1955* (Karachi: Government of Pakistan Press, 1956) and *Statistical Bulletin*, November 1961.

⁹. Advances to the commercial sector were 64 per cent of total advances to the non-bank sector in 1953 but only 45 per cent in 1960. Advances to the manufacturing sector were only 12 per cent of the total in 1953 and 36 per cent in 1960.