Short-Term Borrowing by Local School Districts

Short-term borrowing by school districts has undergone a dramatic change in New York State as well as elsewhere in the nation. Traditionally, the purpose of such borrowing has been to finance temporary cash shortfalls that occur before property taxes are received. In the last several years, however, it has also been used to finance gaps created by state delays in payment of school aid. And even more importantly, many school districts have begun to use short-term borrowing to finance aggressive investment programs. These developments have increased the exposure of school districts to certain kinds of risk and have resulted in several districts' incurring financial losses (box).

Large increases in short-term borrowing and investment by school districts are readily apparent in the national statistics. But additional data to analyze the incentives for such aggressive financial management or to help prescribe effective remedies are not available at the national level. This article closely examines those factors that have led to widespread use of short-term borrowing in cash management by school districts in New York State, where such data are available. Based on this analysis of New York, the article also suggests possible ways to reduce the role of debt in school district cash management. In particular, more flexibility to carry over revenues from one fiscal year to the next, changes in the schedule of state aid payments, and safer investment opportunities, such as state managed investment pools, would reduce the incentives for aggressive borrowing and investment by the nation's school districts.

In the next section of this article, we analyze the cash management problems and financial profiles of school districts, focusing particularly on New York State. Cashflow projection models are then developed based on the alternative financial profiles that emerge. These models reveal why and to what extent New York school districts have responded to their cash management problems by borrowing to finance investment at higher yields. These models also help to quantify the success of state efforts to alleviate the need for such borrowing. Even with these efforts, however, the analysis shows that numerous cash management difficulties still remain.

The cash management problems of school districts

School districts across the country have increased their average investment activity and short-term borrowing. In 1961, the U.S. Advisory Commission on Intergovernmental Relations (ACIR) encouraged all local governments to invest more actively to generate additional income. In the first ten years following that recommendation, school district interest earnings as a share of revenue doubled from one-half of 1 percent to almost 1 percent.[1] From 1972 to 1982, this ratio tripled.

During this 20-year period, short-term borrowing for cashflow and capital purposes remained the most rapidly growing portion of U.S. school district debt, which

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[1]See U S Advisory Commission on Intergovernmental Relations, *Investment of Idle Cash Balances by State and Local Governments* (January 1961) National data are from the U S Bureau of the Census

totaled $36 billion by the end of fiscal year 1984 While total debt outstanding at year-end had grown at an average rate of about 4 percent per year since 1962, the short-term portion grew by 8 percent per year The true growth of short-term debt exposure has probably been considerably greater than suggested by these figures because year-end measures exclude the unknown but large amount of cashflow borrowing repaid just before the close of each fiscal year.

New York school districts have been in a similar position· short-term borrowing and investment became widespread. During the fiscal year July 1, 1983 to June 30, 1984, over half of New York's 732 school districts (excluding New York City) borrowed short-term for cashflow purposes (Table 1, column 1). On average, these districts issued $3.1 million per district in the form of tax or revenue anticipation notes (TRANs). For the U.S. Internal Revenue Service (IRS) to grant any TRAN tax-exempt status, eligible issuers must be able to substantiate the likelihood of a cashflow deficit for at least one month of the fiscal year. Because tax-exempt TRANs have been issued by so many school districts, it must also be true that cashflow deficits occur for the majority of districts in New York during the course of the year.

These cashflow deficits occur because school districts face inherent cash management problems. Their major expense is for personnel at a dollar cost that is generally fixed in advance with frequent disbursements in roughly constant amounts. As a result, districts have a fairly uniform monthly need for cash. At the same time, their major source of local revenue is property taxes, which are also generally fixed in advance but received (in contrast to disbursements) very infrequently. Usually paid once or twice a year after the fiscal year has begun, property tax payments can create large swings in school district cash balances and create the need for short-term borrowing.[2]

[2]Personnel costs also can create cash management problems when labor contract negotiations are not coordinated with the budget cycle In particular, uncertainty concerning the size and effective date of salary increases will make it more difficult to anticipate cash shortfalls In this article, it is assumed that all costs are known in advance It is hard to be precise about timing of tax receipts across the nation's schools, but general observations are possible because state legislation usually establishes guidelines for how and when property taxes are to be collected

Table 1

Financial Profile of New York State School Districts

Fiscal year 1984

	All districts* (1)	Non-city districts			City districts* (5)
		Nassau (2)	Suffolk (3)	Other (4)	
Number of districts	732	54	73	544	61
	(share of own budget)				
Average property tax	48%	69%	51%	45%	41%
Average state aid	39%	24%	39%	43%	43%
	(percent of districts in category)				
District borrowing†	55%	91%	88%	47%	59%
	(million dollars per borrowing district)				
Average borrowing†	$3 1	$5 3	$7 1	$1 4	$4 3
	(million dollars per district)				
Average expenditures	$11 8	$21 8	$19 9	$7 8	$28 4
	(average borrowing as a share of average expenses)				
Average debt dependence†	26%	24%	36%	18%	15%
	(share of own budget)				
Interest payments†	0 6%	1 1%	1 5%	0 3%	0 3%
Interest receipts	1 8%	2 1%	2 2%	1 8%	1 3%

*Excluding New York City
†Tax and revenue anticipation notes

Sources New York State Department of Education and New York State Office of the Comptroller

These swings in cash balances and the resulting need to borrow have often been magnified by the way the state disburses aid, the second major source of school revenues. Because aid to school districts is also a large part of New York's budget, delays in payment of aid have been a common solution to state fiscal stress.[3]

Over the years, New York State has stayed within its own budget limitations by delaying payment of up to 75 percent of school aid until April, May, and June, the last quarter of the school fiscal year.[4] Because districts cannot similarly delay their expenditures, a second, mid-year deficit emerges (after tax proceeds have been spent but before most state aid arrives), and many districts need to borrow a second time each year.

[3]The importance of state aid to school districts is even greater in states outside New York State aid rose to over 45 percent of total U S school district revenues in the 1980s after having remained at about 38 percent for two decades For examples of school district borrowing in general and of delayed payments of school aid in particular, see Joe Mysak, "Same Time Next Year," *Credit Markets* (June 9, 1986), page 10, and Allen J Proctor, "Tax Cuts and the Fiscal Management of New York State," this *Quarterly Review* (Winter 1984-85)

[4]Districts receive 8⅓ percent of state aid per month in September, October, and November They receive 25 percent per month in April, May, and June under the regular aid program Special programs for earlier payments are discussed in a later section

Risks from Current Trends in School District Finance

The end result of the trend toward more borrowing and investment has been an increasingly aggressive cash management style that seeks high net yields while exposing schools to several risks. One risk is that school districts that rely on short-term borrowing may have to cease operations temporarily if local lenders become unwilling to provide enough funds. The likelihood of this problem occurring is increasing. For example, in Iowa, banks have become reluctant or unable to supply districts with all the funds they need As a result, the state recently had to intervene to ensure school districts timely access to short-term financing.*

At least as important is the risk that large interest rate swings may turn the process of borrowing and investment into a source of revenue losses rather than gains This risk can be substantial because the decision to borrow, the actual borrowing, and the investment of the borrowed funds usually occur several months apart. If the school district incorrectly predicts interest rate movements, the cost of borrowing may substantially exceed the return on investment. This situation has become more common since 1979. School districts that have been locked into losses for months at a time can have difficulty finding additional revenues to replace the failed investment program.

The search for higher returns has also led school districts to undertake investments that have placed their principal at risk. In 1984, the failure of two securities dealers, the Lion Capital Group and RTD Securities, turned these risks into losses for many investors, including school districts In New York State, for example, 62 districts may face possible losses of up to $77 million as a result of insufficiently secured collateral for repurchase agreements † They have not yet recovered all their investment, and special state legislation has been enacted for the past three years allowing the districts to finance these losses until the funds are recovered.‡

High levels of short-term cashflow borrowing underlie all these risks, either directly or through encouragement of aggressive investment behavior. A process intended to improve the fiscal health of local government has evolved into a pattern of high-risk fiscal management. Recognizing the breadth of this problem, in 1985 the U.S Advisory Commission on Intergovernmental Relations recommended for all local governments that "short-term borrowing, both for operating and capital purposes, be strictly limited and regulated ."§

*See Joe Mysak, "Same Time Next Year," *Credit Markets* (June 9, 1986), page 10

†See New York State Assembly, *Gambling with Public Funds The Lion Capital Bankruptcy and Its Implications for Government Investment Practices* (March 1985), pages 141-147

‡The failure of professional dealers who were caught in an unanticipated interest rate swing made many school district officials aware that aggressive cash management could have sizable risks To increase this awareness further, in December 1984, the Office of the State Comptroller of New York issued a detailed investment manual for localities that emphasized safety and liquidity over yield as criteria for investment decisions *(Cash Management and Investment Policies and Procedures for Use by Local Government Officials)* Publication of these guidelines was followed by an extensive educational outreach program by both the State Comptroller and the Federal Reserve Bank of New York Informed state officials believe that investment practices in New York are now more cautious than in 1984 Similar prudential efforts are not obvious in other states, and an informal survey of the Southeast suggests that use of risky investments such as repurchase agreements is extensive (see B McCrackin *et al*, "State and Local Governments' Use of Repos A Southeastern Perspective," Federal Reserve Bank of Atlanta, *Economic Review* (September 1985)

§See Advisory Commission on Intergovernmental Relations, *Bankruptcies, Defaults, and Other Local Government Financial Emergencies* (March 1985)

The overall effect of these property tax, state aid, and expenditure flows can be estimated using cashflow models that separately project and then combine the various flows into a cumulative cash balance projection In particular, the cashflow models constructed for this analysis project monthly cash balances that are consistent with the financial profiles in Table 1 While the exact situations of individual districts may vary considerably, the cashflow models can reveal some of the types of cashflow situations that have led to the current financial practices of school districts

The basic differences in cashflow profiles across districts are closely related to the timing of property tax receipts. In contrast, the timing of conventional forms of state aid receipts and of overall expenditures is fundamentally alike for all districts The schedule of property tax receipts, therefore, can be used to divide New York districts into four general cash management profiles [5]

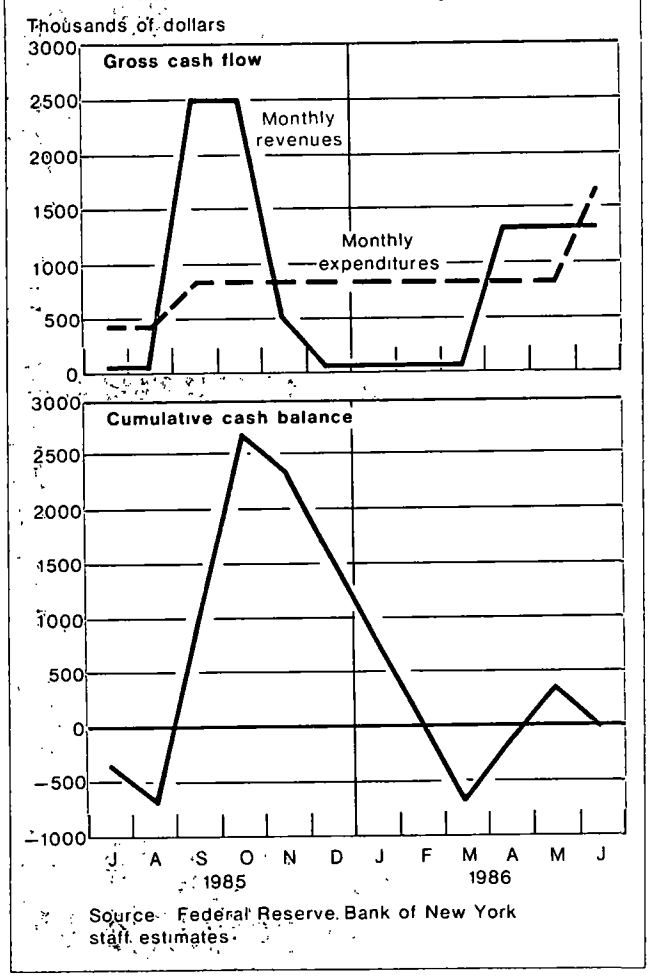
- Nassau county districts are highly dependent on property taxes but they receive no tax revenues until the fourth month of the fiscal year, and half the revenues are not received until the last quarter of the fiscal year Combined with the fourth quarter receipt of most state aid, these factors substantially heighten the likelihood of cash shortages during the year As a result, cashflow borrowing averages 24 percent of expenditures (Table 1, column 2)

- Suffolk county districts have above-average dependence on property taxes that are received very late in the year They must operate through December without tax revenues Reflecting these circumstances, short-term borrowing on average finances 36 percent of their expenditures (Table 1, column 3)

- City school districts typically receive taxes in the first through third months of the fiscal year and borrow relatively less than the other three types of districts, an average of 15 percent of expenditures (Table 1, column 5) [6]

- Non-city school districts (outside Nassau and Suffolk counties) generally receive property tax reve-

Chart 1
School District Cashflow: An Illustration



Source: Federal Reserve Bank of New York staff estimates.

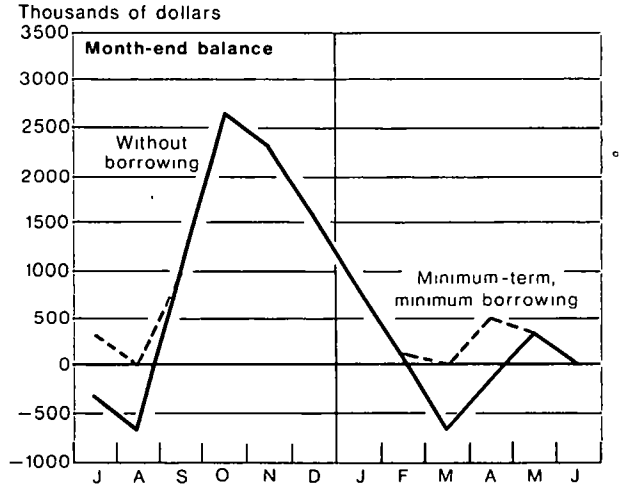
[5] The models used in this study assume that district receipts and payments are known with certainty Obviously, unanticipated changes can occur that may raise or lower monthly cash balances from the projected levels One area of uncertainty is the amount of delinquent property tax payments Higher delinquencies will reduce revenues and increase school district cash deficits The effect of delinquencies on school revenues, however, is limited in duration in New York For most school districts, the county government assumes all delinquent school district property taxes by April (the beginning of the fourth quarter of the school fiscal year) At that point the school district receives all its levied taxes and the county undertakes collection efforts

[6] The New York City school district is excluded in this study The necessary data are unavailable because school cash management is so intertwined with the rest of the city's finances We must necessarily generalize across other city school districts because their situations are governed by the separate charters of their respective cities For example, the average reliance on property taxes rises to 44 percent if we exclude Rochester, Buffalo, and Syracuse—fiscally dependent districts that also rely on sales tax revenues The date of property tax receipts is the beginning of the fiscal year (July 1, except for Syracuse) for 12 districts and September for all other city districts At least five city districts receive their property taxes in two installments and two districts in four installments throughout the year In addition, some cities benefit from a special state aid program (Hurd aid) that can disburse assistance much earlier in the school fiscal year than the regular school aid program

Chart 2

School District Cumulative Cash Balances

Minimum borrowing strategy for a district with first and third quarter deficits

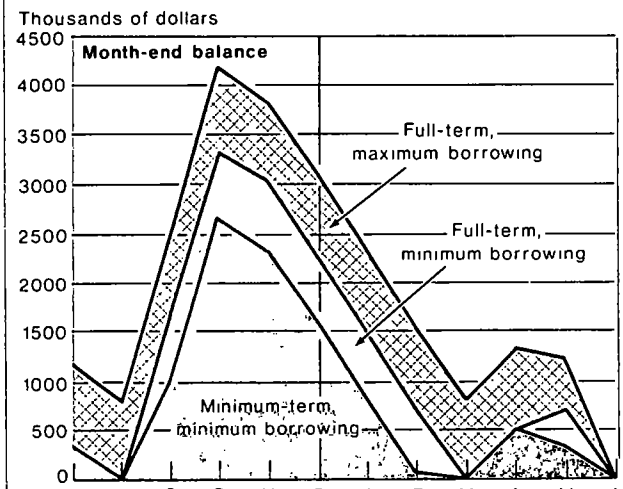


Source Federal Reserve Bank of New York staff estimates

Chart 3

School District Cumulative Cash Balances

Alternative borrowing strategies



Source Federal Reserve Bank of New York staff estimates

nues in the third and fourth months of the fiscal year[7] The slightly longer delay than for city districts increases the likelihood of insufficient cash in the early months of the fiscal year Therefore, non-city districts borrow slightly more than city districts (Table 1, column 4) Because these non-city districts account for 544 of New York's 732 districts, they will be the focus of much of the following analysis

To illustrate the general nature of the cashflow problem before going into more detail, Chart 1 shows an example of a non-city district's cashflow profile for the July 1 to June 30 fiscal year Property tax receipts create one revenue bulge in September and October, and state aid creates a smaller bulge in April through June Expenditures are generally uniform across months The net effect of these flows would be a period of sizable cash balances available for investment from September through January and during May. At the same time, the school district would need to borrow short-term in order to pay expenses in July, August, March, and April

By applying appropriate interest rates to these periods of borrowing and investment, it is possible to simulate school districts' likely interest earnings and payments By comparing actual and projected interest flows, it can be estimated how closely districts' borrowing and investment followed projected patterns based solely on routine cashflow needs Any differences between the actual and projected values might be attributed to efforts to earn additional income through borrowing for investment purposes

Overall, projections of interest earnings and payments, based on fiscal year 1984 interest rates, are both considerably less than the $157 million of total interest all New York districts earned and the $52 million of interest they paid in that year This probably occurred because districts borrowed more than they needed for routine purposes and invested the additional proceeds at higher yields [8]

[7]State law allows counties to pass tax acts which, among other things, determine whether school property taxes may be paid in up to six installments Seven counties appear to permit such installments Moreover, a few counties are governed by special tax acts or charters The Nassau and Suffolk County Tax Acts establish specific tax payment dates for school districts in their jurisdictions These dates are unusual and create special problems for their school districts

[8]Since the end of fiscal year 1984, interest rates have fallen Similar cash management practices today would be consistent with lower interest earnings and payments The large difference between actual and projected net interest earnings is consistent with efforts by school districts to earn above-normal net yields through aggressive, and generally riskier, investment practices In fact, the New York State School Boards Association and the New York State Assembly

Borrowing for the explicit purpose of investing at higher yields is generally referred to as arbitrage, and it is widespread among issuers of tax-exempt debt throughout the United States. The next section of this article reviews the routine cashflow borrowing needs of non-city districts and uses cashflow models to analyze in more detail their opportunities and incentives to borrow for arbitrage purposes. Simulations of possible arbitrage programs are then used to estimate whether arbitrage has increased short-term borrowing in the four categories of New York districts summarized in Table 1.

Arbitrage in New York school districts

The average projected cashflow of a non-city district in New York has two potential deficit periods because of the timing of property taxes and state aid. As shown by the solid line in Chart 2, these deficits would require a borrowing program lasting at least several months each year. The school would need to borrow enough at the beginning of the fiscal year to finance July and August expenditures, and it would generally be able to repay that debt in September when property taxes began to arrive. Similarly, it could finance the third quarter deficit by borrowing again in March and repaying in May when most of its state aid would have arrived. The strategy of borrowing the smallest amount for the shortest period is shown by the dashed cash balance line in Chart 2.[9]

The incentive for arbitrage in New York

Starting from this basic borrowing program, a school district could make some alterations that would reduce its costs. The school district could reduce the cost of issuing notes twice in the same year by extending the term of the TRAN it issues in the first quarter. Thus, instead of repaying the July note in September, it would hold on to the funds until they were needed again in March.

Keeping the debt outstanding through March has other cost advantages as well if interest rates remain relatively stable. In the months when the funds are not needed to finance deficits, schools are able to invest the borrowed money at interest rates that are almost always higher than their borrowing rates. School districts can do this because they borrow in the tax-exempt market and invest in the taxable market, but are not subject to income tax themselves. The more the borrowing period is extended, the more the school district is able to take advantage of this favorable interest rate spread. In practice, the school district could, by borrowing early and repaying late, have borrowed funds available for investment for almost the entire year. This strategy would help districts reduce the net costs of financing recurrent cashflow deficits.

Chart 3 illustrates how investment funds can be generated by extended borrowing The solid area represents the amount of cash a district has available for investment when it borrows for as short a period as possible. By extending its borrowing to twelve-month maturities, the school district increases its investable cash balances by the amount of the gray area in the chart. This full-term borrowing provides schools with investable surpluses in July and April, which would otherwise be deficit months It also enlarges the projected surpluses in September through February and in May.

Comprehensive data are not available on how many of the over 400 New York districts that borrowed in 1984 used this arbitrage technique to reduce their net borrowing costs. Announcements published by a smaller number of districts, nevertheless, suggest that full-term borrowing appears widespread Specifically, of the 186 TRANs publicly announced in 1983 and 1984, 85 percent were issued around the start of the fiscal year and 96 percent matured near the end of the fiscal year.[10]

Another way to increase arbitrage earnings is to increase the amount of borrowing beyond what is needed to finance cashflow deficits For example, a school district with a cash shortfall of $1 million could borrow that amount at a tax-exempt rate of 6 percent for an annualized cost of $60,000. But if the district desired to reduce the overall cost of financing, it could borrow $2 million and invest the extra $1 million at a taxable yield of 8 percent. The school district's annualized cost of borrowing would rise by $60,000, but its investment income would rise by $80,000, for a net arbitrage profit of $20,000 and a reduction of its net annual interest expense from $60,000 to $40,000.

As this example illustrates, from the standpoint of arbitrage earnings, the school district has an incentive to borrow as much as possible. The most important limits to arbitrage activity are IRS regulations that put a ceiling on the use of tax-exempt borrowing to finance

Footnote 8, continued
found that school districts tended at that time to favor yield over safety in pursuing their investment programs See New York State School Boards Association, "Survey of Local School District Investment Policies," draft report (April 1985), and New York State Assembly, *Gambling with Public Funds* (March 1985) In 1985, the state undertook an extensive investment education program which reportedly has led school districts to shift their emphasis from yield to safety See the box for more information

[9]For some school districts this procedure may not be possible or it may incur excessive debt issuance costs Such districts may borrow once a year for their entire year's needs even if other incentives for extended-term borrowing do not exist Also, two measures to reduce the size of first and third quarter deficits are discussed in the next section Many non-city districts appear to use these measures to lower their cashflow deficits from the levels shown in Chart 2

[10]These data were compiled by the Office of the New York State Comptroller from daily issues of the *Bond Buyer*

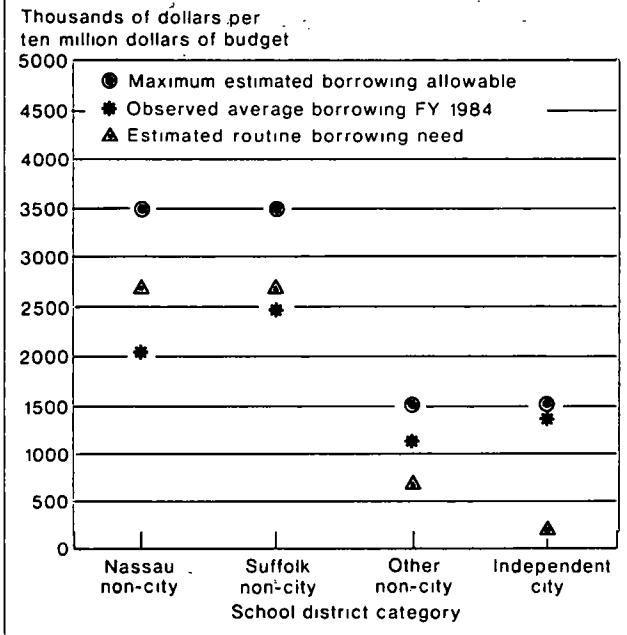
arbitrage.[11] Nonetheless, IRS regulations still allow schools substantial leeway in arranging an arbitrage program.

A school district that borrows up to the IRS maximum for the full term of the fiscal year will substantially increase its monthly cash balances available for investment The projected increase is represented by the hatched area in Chart 3 Provided the taxable/tax-exempt yield spread is large enough, the school district will be able to use its additional investment income to pay all the interest cost of the additional arbitrage borrowing and part or all of the interest cost of financing its recurrent cash deficits.

[11]Schools and other local governments are permitted to issue tax-exempt TRANs up to the sum of their largest monthly cumulative cash deficit plus the following month's expenditures When monthly expenditures are larger than monthly deficits, this rule allows localities to borrow more than twice their deficit-financing needs Cashflow projections suggest that New York school districts generally face the latter situation The IRS also requires that the borrowed funds be spent within several months of issuance, but this requirement is generally satisfied for schools when the July-August shortfall is funded

Chart 4

Estimates of Short-term Borrowing Beyond Routine Cashflow Needs



Average borrowing above routine levels suggests that arbitrage borrowing is taking place School districts are grouped by property tax levy dates

Source Federal Reserve Bank of New York staff estimates

Estimating the use of arbitrage

A typical non-city school district in New York State appears to be able to offset virtually all the cost of financing a cashflow deficit by using arbitrage The exact benefits of arbitrage will vary from district to district, depending on various factors including the yields at which it can borrow and invest Estimates suggest, however, that an interest rate spread of only 95 basis points would generally make arbitrage worthwhile in the sense of reducing overall costs, and larger spreads could result in net profits

For example, extending the maturity of debt from two months to 12 allows a district to reduce its net interest cost from an estimated $7,800 to only $460 based on a borrowing cost of 6 percent and an investment yield of 8 percent (Table 2) Full-term borrowing of an amount equal to the largest monthly cash deficit plus the following month's expenditures (the maximum allowed by the IRS) would enable the district to pay all borrowing costs and earn an estimated profit of about $14,000.

The prevalence of arbitrage borrowing in New York can be estimated by comparing average observed levels of borrowing with projections of routine and maximum amounts of borrowing This is done by projecting monthly cashflows in the absence of borrowing, identifying the largest monthly cashflow deficit (which determines the routine level of borrowing necessary), and adding to this deficit the subsequent month's expenditures (which determines the maximum allowable level of borrowing)

Estimated routine borrowing needs and maximum allowable borrowing are compared with average borrowing in fiscal year 1984 for all four categories of districts (Chart 4) If observed average borrowing is near the estimated routine borrowing level, then it is likely that school districts in that group do not generally borrow primarily for arbitrage purposes If borrowing exceeds the routine level, on the other hand, then some arbitrage borrowing is taking place Borrowing near the estimated maximum level suggests that arbitrage is the principal motivation for short-term borrowing by most school districts in that group

This procedure reveals that city districts borrowed on average as much as IRS regulations would allow, that is, arbitrage played a significant role in their fiscal year 1984 short-term borrowing programs In contrast, non-city districts in Nassau and Suffolk counties seemed to borrow only about as much as required by their severe projected cashflow problems Thus, while they borrow proportionately more than any other districts in the state, they do not appear motivated primarily by arbitrage Arbitrage does seem to play a modest role, however, in the borrowing decisions of non-city districts in other counties These districts on average borrow more than

Table 2

The Use of Arbitrage to Reduce the Cost of Financing Cashflow Deficits*

In dollars

	Without arbitrage	With arbitrage	
Maturity of borrowing	Minimum-term	Full-term	Full-term
Amount of borrowing	Routine	Routine	Maximum
Cost of borrowing	13,340	35,350	79,500
Income from investment of borrowing	5,540	34,890	93,760
Net cost of borrowing	7,800	460	−14,260

*Based on simulations of a non-city school district receiving 50 percent state aid with an annual budget of $10 million Interest rates are 8 percent for investments and 6 percent for borrowing applied to balances at the beginning of each month The principal invested is the same as in Chart 5 Total school district investment income also includes $58,910 of interest earned from investment of unborrowed funds, principally unexpended property tax receipts Full-term, maximum borrowing has estimated arbitrage gains exceeding costs for taxable/tax-exempt spreads exceeding 95 basis points in this simulation

their routine cashflow needs but not generally as much as IRS regulations would allow.[12]

Up to this point, the evidence shows that school districts in New York borrow short-term both for routine cashflow and for arbitrage purposes Estimates of probable cashflows suggest that this borrowing finances one or more temporary deficits that result from untimely receipt of property taxes and state aid. Once a school district does any borrowing, it has a strong incentive to borrow even more for longer periods in order to reduce its net cost of borrowing Since debt seems to encourage even more debt, the obvious solution is to reduce, if not eliminate, routine short-term borrowing needs. (Also see the box for additional reasons for reducing debt, including the risks and losses some districts have incurred.)

State programs to reduce districts' need to borrow

New York has two laws that attempt to reduce or eliminate the cashflow deficits that many schools encounter One provides schools with some scope to self-finance their first quarter deficits The second provides earlier payment of state aid that may reduce third quarter cashflow financing needs for some school districts.

First quarter deficits

The majority of school districts are often short of cash at the beginning of the fiscal year in July and August because they receive no property tax revenues or state aid before September At the same time, the closing months of the fiscal year bring an estimated cash surplus If schools were able to carry some fourth quarter surplus over into the initial months of the next fiscal year, the need for first quarter borrowing might be reduced.

In general, school districts are required to return to taxpayers any funds that are left over at the close of the fiscal year[13] Since 1977, however, New York state law has allowed schools routinely to retain up to 2 percent of their budgets as unreserved balances to finance the initial months of the subsequent fiscal year. Aggregate data provided by the State Department of Education suggest that school districts on average have taken full advantage of this program. But it is not enough. Cashflow projections suggest that even if the amount of permitted carryover were doubled, enough cash would be on hand to finance only July cash needs for the average district. About half of the first quarter borrowing would still be necessary to cover shortages in August.

Third quarter deficits

The projected deficits that many school districts encounter in the third quarter are caused by payment of most state aid in the closing months of the fiscal year.

[12]These comparisons are based on averages for each group of school districts and, therefore, only suggest the motives underlying individual district borrowing The amount of borrowing and the role of arbitrage vary across districts For example, fiscal year 1984 borrowing by the 61 city districts (excluding New York City) averaged 15 percent of expenditures but ranged from zero to 73 percent Twenty-five districts did not borrow that year, twelve borrowed about 10 percent of expenditures, twelve borrowed about 20 percent, nine borrowed up to 30 percent, and three borrowed more than half their budgets

[13]In New York, the general fund balances of districts are called unreserved balances The prohibition against accumulating unreserved balances is intended to keep property tax rates as low as possible Ironically, using tax rate changes instead of accumulated balances to balance budgets over a business cycle may actually raise the overall burden on taxpayers For additional discussion of this effect, see Allen J Proctor, "Tax Cuts and the Fiscal Management of New York State," this *Quarterly Review* (Winter 1984-85)

As the state increases its support (in percentage terms) of local education, the unfavorable effects on schools' cash management problems (not necessarily their overall budgets) of this aid disbursement schedule become more pronounced. In particular, increased reliance on state aid shifts a larger share of total school revenues into the last quarter of the school year. This shift has two adverse consequences for school districts' cashflow profiles. Increased aid dependence reduces the projected amount of cash that schools have available for investment in the second quarter, and it increases the projected size of third quarter cash deficits (Chart 5).[14]

Lower balances in the second quarter will reduce investment income. The loss of investment income offsets some of the value of state aid to a district's budget. As a result, a district's taxes may be higher, expenditures lower, or investments more aggressive than they would be if state aid were paid earlier. All other things equal, a school district financed 60 percent by state aid may have as much as two-thirds less cash available for investment than a school district financed only 40 percent by state aid.

[14]Dependence on state aid has also created cashflow uncertainty for districts in April and May because the state has not always made its payments on time (due to delays in approval of the state budget, which must be approved before any payments can be made after April 1, the start of the state fiscal year) Schools, therefore, must take steps to ensure that they can continue operations if aid is late The state has begun to fund an escrow account to ensure spring payments At some point in the future, the amount in escrow may be sufficient to eliminate the risk of late April or May payments

The second effect of greater state support is that third quarter cash shortfalls may increase and schools may need to incur more short-term debt. For example, model projections suggest that the average-sized non-city school district will have cashflow deficits of about $1 million in March and April if it is 60 percent funded by state aid, whereas it would have cashflow surpluses if state aid were only 40 percent of its budget (Chart 5). In fiscal year 1984, state aid to non-city districts averaged around 60 percent for districts in 20 counties, around 50 percent for districts in 19 counties, and 40 percent or less for districts in the remaining 18 counties.

Recognizing the adverse impact on some school districts of paying state aid in the spring, the state has a special payments program that moves some state aid payments from April and May into December, January, February, or March. The formula determining the size of the special payments is essentially based on the share of state aid in a school district's budget.

A large number of districts receive these more rapid payments. In the school year ending June 1984, 405 districts received March payments, 228 received February payments, and 43 received January payments. No school district received aid payments in December of that year. The amount of special aid payments totaled about 6 percent of the state school aid budget with about 5 percent paid in March.[15]

[15]The amount and timing of the special payments varies each year according to the formula In fiscal year 1987, for example, some aid is scheduled to be paid in December and the total amount of special aid represents 7 percent of the state school aid budget

Table 3

Projections suggest that districts needed this share of aid each month...

	Projected average percentage of aid needed			
	December	January	February	March
Independent city	12 5	0	0	12.5
Non-city				
Other	0	0	11 2	12 5
Nassau	12 5	12 5	12 5	12 5
Suffolk	50	0	0	0

While the state paid early aid to this share of districts in fiscal year 1984...

	Percentage of districts in category			
Independent city	0	2	18	74
Non-city				
Other	0	8	39	63
Nassau	0	0	2	2
Suffolk	0	0	3	19

These estimates of needed aid are based on school districts which are heavily dependent on state aid in their annual budgets The need for early aid would be lower in school districts where state aid accounts for less than half of their budgets

The overall success of this more rapid payment program can be assessed by comparing model projections of the monthly need for special aid (as measured by periods of cash deficits) to the special payments that were actually made In fiscal year 1984, a total of 25 percent of aid was paid from September through November, 6 percent from January through March, and 69 percent from April through June Table 3 provides estimates of a projected distribution of special aid that would have precluded the need for school districts to borrow from December through March. Comparisons of these estimates with aggregate data on the state special aid program suggest how successfully the program may be meeting individual district needs

- Independent city districts, on average, required up to 12 5 percent of their aid in December and again in March in order to avoid cash shortfalls By and large, the bulk of city districts received March payments that year None received December payments, which probably left a number of city schools with deficits to finance

- Most non-city districts (outside Nassau and Suffolk counties) have projected deficits in February and March that could be eliminated by special aid payments of up to 12 5 percent in each month. Districts receiving the average state aid allotment would need few if any special payments, but districts heavily dependent on state support are likely to run short of cash without a sizable amount of special aid. By and large, the state program addressed their February and March needs that year. the majority of non-city districts (outside Nassau and Suffolk) that were heavily dependent on state aid received February or March payments

- Non-city districts in Nassau and Suffolk counties have unusual cashflow problems that are not well addressed by the state program for earlier payment of aid In particular, districts in these counties receive most of their state aid and property tax revenues in the last quarter of the fiscal year As a result, their need for special aid payments is projected to be on average the most severe in the state, particularly in December and January[16] In 1984 (and currently), Nassau and Suffolk districts have not received December or January aid payments and only a small percentage have received payments in February or March

In sum, the New York program seems to address third quarter cashflow problems for the majority of school districts Most city and non-city districts receive special aid payments that generally correspond to their probable needs This program, however, does not serve many districts in Nassau or Suffolk counties, despite the likelihood of severe cashflow problems. Even if the program were applied to more districts in those two counties, however, it would be of limited value In particular, the February and March payments generally provided by the program would not address their sizable projected cash shortages in earlier months. As a result, these districts would probably continue to require substantial third quarter borrowing

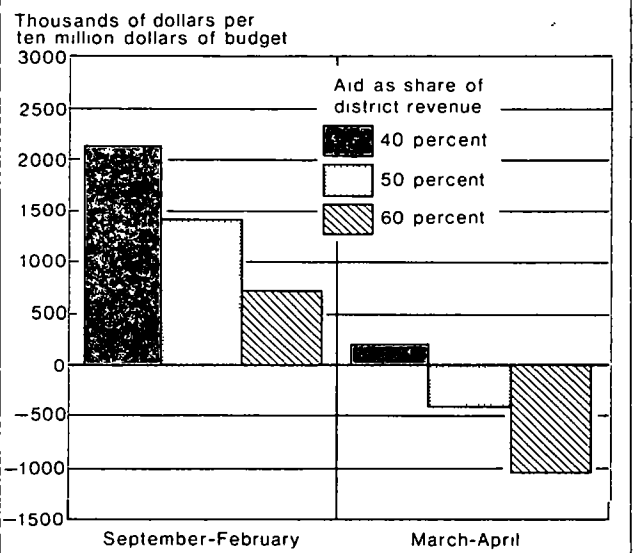
The combined effect of state programs

Even with state efforts to reduce the need for short-term

Chart 5

The Relationship Between Projected Cash Balances and the Use of State Aid

By share of state aid in school district budgets



September-February balances are a source of investment income March-April deficits reflect the need for earlier state aid or short-term borrowing

Source Federal Reserve Bank of New York staff estimates

[16]State officials were aware of this problem when the special aid formula was set up The state formula was constructed to help districts whose third quarter needs were principally due to the state aid schedule In contrast, the third quarter needs of districts in Nassau and Suffolk counties are principally due to the late property tax schedules established by their respective County Tax Acts

borrowing by New York school districts, about 60 percent of all city districts, 90 percent of non-city districts in Nassau and Suffolk counties, and about 50 percent of other non-city districts issued TRANs in fiscal year 1984. Some of this borrowing is unavoidable, and some appears to be for the purpose of generating arbitrage profits.

Overall, it appears that the cashflow problems faced by most school districts in New York are primarily in the first quarter when one or two months' operations need to be financed until property taxes are received. Addressing this problem would go far in reducing the need for borrowing by schools and, hence, would also reduce some of their arbitrage activity. The cashflow problems of districts in Nassau and Suffolk counties are different from those in the rest of the state. They are more severe and require a different approach than has been taken thus far.

Potential improvements to school district finance

While this analysis has focused on New York, cash management problems are an integral part of local school finance everywhere. The severity of these problems obviously varies across school districts and across states, yet one or more common sources of difficulty emerge:

- Property tax schedules may not be coordinated with spending requirements.
- State aid schedules may have adverse effects on the cashflow of schools.
- Strong incentives may exist for schools to invest aggressively and to borrow more than necessary.

Property tax payments ideally should begin at the start of the fiscal year. If rescheduling tax payments is not practical, an alternative would be to allow schools to accumulate sizable surpluses that could be carried from one fiscal year to the next. Permitting self-financing of cashflow deficits that occur at the start of the fiscal year would make a change in property tax schedules less critical. Under present conditions, existing limits on carryover may create an artificial need for schools to go into debt, with accompanying pressures to reduce the cost of borrowing through arbitrage. For school districts to carry over amounts large enough to eliminate first-quarter borrowing, it might be necessary to raise taxes temporarily to accumulate sufficient surpluses. This additional cost to the taxpayer is worthwhile only if it is offset by the benefits of lower debt.

States should also reexamine the impact of school aid payment schedules on local cash management. New York's special rapid payment program meets the needs of a majority of school districts, but even this program seems insufficiently focused on the overall cashflow condition of individual districts. As with property tax payment schedules, aid payments ideally should closely parallel districts' spending needs.

States, of course, have their own cashflow problems, and the appropriate solution would strike a balance between the timing of local needs and the state's ability to pay on an earlier schedule. For example, because of cash management problems, New York State currently finances the bulk of school aid with its own short-term borrowing, and, hence, it has an incentive to make the payments as late in the year as possible. This approach, in effect, means that both the state and the school districts are often borrowing against the same aid dollar. New York State is borrowing in anticipation of tax revenues, and the school districts are borrowing until state aid arrives. The overall expense of double borrowing to the taxpayer is obvious, and the state is already taking steps to reduce its reliance on short-term debt. But it would also be expensive for the state to pay aid even earlier in the year so that borrowing by school districts could be reduced or eliminated.

Finally, there appears to be a need for increased prudential oversight of short-term borrowing by school districts. At a minimum, improved monitoring and reporting would enable public officials to anticipate financial problems before they became unmanageable. Some states might prefer more direct involvement in the cash management of schools. Three specific improvements could be considered:

- More information is needed on individual district's cashflow problems and their borrowing practices Presently the cashflow situation of school districts must be simulated using models such as those used in this study. With more complete data, state officials would be better equipped to develop local property tax laws and school aid programs that provide schools with adequate cashflow throughout the year. And, on the debt side, short-term borrowing is not necessarily a good indicator of school district cashflow problems. It would be easier to use debt statistics to assess the financial condition of districts if enough information were available to separate, for example, arbitrage borrowing from other short-term borrowing.
- Increased restrictions on how borrowed funds could be invested would help avoid some potential problems (box) Arbitrage provides strong incentives for aggressive investing to raise yields. This behavior exposes public funds to levels of risk that have

already resulted in financial losses One policy response would be to allow investment of borrowed funds only in instruments with the lowest credit and market risk. Such a requirement would sharply reduce the incentive for arbitrage borrowing. New York's recent guidelines on permissible investments are a worthwhile move in this direction.[17]

[17]See Office of the State Comptroller, *Cash Management and Investment Policies and Procedures for Use by Local Government Officials* (Albany, New York, December 1984)

- Requirements that state or regional short-term investment pools manage school districts' investments would insulate districts from pressures to maximize investment income. Without direct control over the yield from investing their borrowed funds, districts may be less inclined to borrow for investment purposes and, of course, would not be able to take unacceptable risks. Large pools also would provide other advantages, including lower management costs, greater portfolio diversification, and lower transaction fees.

Allen J. Proctor