Cash Reserve Policy

Contents

The question:

"Would a rational voter ever vote for higher taxes in order to keep more money on deposit in Town accounts?"

Introduction

The issue of how much cash reserves the Town should maintain continues to be controversial. Several years ago, after examining the question, Advisory recommended that a Stabilization Fund balance that was normally kept at around $400,000 would be adequate, and that voters should not support any larger balance.

This paper will examine the question again, against the backdrop of a recent reanalysis of the latest DOR cash reserve data from Massachusetts towns. The position that this analysis supports is that the reasons usually given for maintaining higher balances are invalid. Even so, there is a legitimate policy question about whether higher cash balances should be looked upon as a kind of insurance. Therefore after completing the economic analysis of higher balances, the legitimate policy questions about reserves as insurance are considered.

The backdrop of this analysis is the assumption that voters rarely need an Advisory Committee to tell them about popular opinion, or even rules of thumb. It is the job of the Advisory Committee to carefully scrutinize economic claims and analyze data so as to bring added value that voters otherwise cannot readily access.

What is a Prudent Amount?

Advisory has determined that the prudent amount of money to keep available under ideal circumstances is about $400,000. Under unusual conditions it might be allowed to go lower than this. This amount allows the Town to make appropriations for unexpected expenses during the annual period when the tax rate is frozen for the current fiscal year. Generally amounts larger than $400,000 are bonded and therefore can be appropriated at any time of year. Experience would suggest that this $400,000 is generous, maybe too high. In no year during the life of the Stabilization Fund, (about 20 years) have appropriations approaching $400,000 actually ever occurred that were due to unforeseen events during the tax rate lock down period. We may ask whether keeping such a balance, for events that have apparently less than 5% probability, is necessary. Of course, it is possible that the last 20 years have been unusual with regard to risk. Regardless, this is the logic for the $400,000 recommendation.

Arguments for Higher Cash Reserves

Since those who argue for higher reserves are arguing for additional taxes, the burden of proof should be on them to show that their case has merit. Nevertheless, the purpose of this paper is to show the challenge that must be met to sustain such an argument by examining each of the claims that are sometimes made.

The Argument based on Town Bond Rating

The most common argument for higher cash reserves is that it will improve the Town's bond rating or that lower reserves will result in a lower bond rating. This argument then proceeds to a second step in which it is claimed that such higher bond ratings will deliver savings to the taxpayer through lower interest costs.

As a backdrop to the analysis, we should all be able to agree on two foundational concepts:

- that taxpayers should not vote to increase their taxes unless they receive some benefit,
- that creating or maintaining higher cash reserves requires higher taxes.

The question regarding Bond Rating is, "Should a rational voter vote to increase their taxes in order to keep higher reserves with the hope of benefiting from a better Town Bond Rating?"

If the answer to this is affirmative, then higher reserves must *Deliver* *Net Benefit*, as follows:

1. *Delivery.* Higher reserves must *reliably deliver* the expected result of an improved bond rating compared to lower reserves. Note that actual delivery is a normal requirement for anything that we ask taxpayers to pay for. We don't normally choose to spend money for vague promises that result in nothing.
2. *Net Benefit.* The improved bond rating must save the taxpayer money, in the long run, compared to the alternative of the taxpayer keeping the money in their pocket and accepting the consequences (if any exist), for Bond Rating. (This presumes that the Bond Rating isn't some kind of blessing, worthwhile for its own aura of goodness.)

Advisory Committee has carefully investigated these questions and found:

1. **No Delivery of lower bond rating**.
2. **No Net Benefit**, even if there was Delivery. In other words, even if it actually delivered a better bond rating, it isn't worth it.

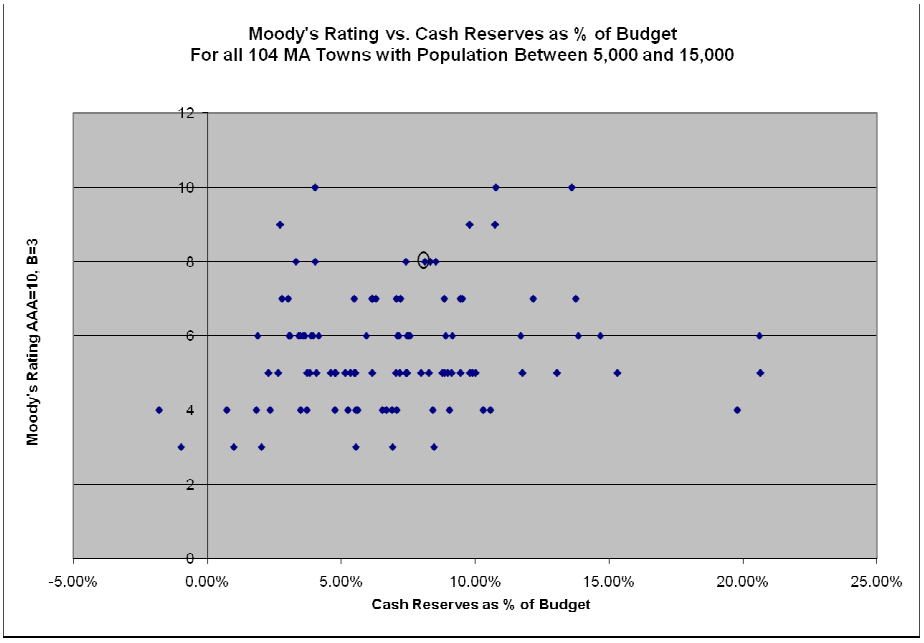
It is easy to find casual claims of the importance of cash reserves for Bond Ratings in the popular press. It is also possible to find informal statements from credit rating agencies that cash reserves are "a factor". However, even the informal statements typically list several more important factors, particularly the average per capita income of the

community. We have never found any such claim that was backed up by empirical data that showed that reserves were a material factor.

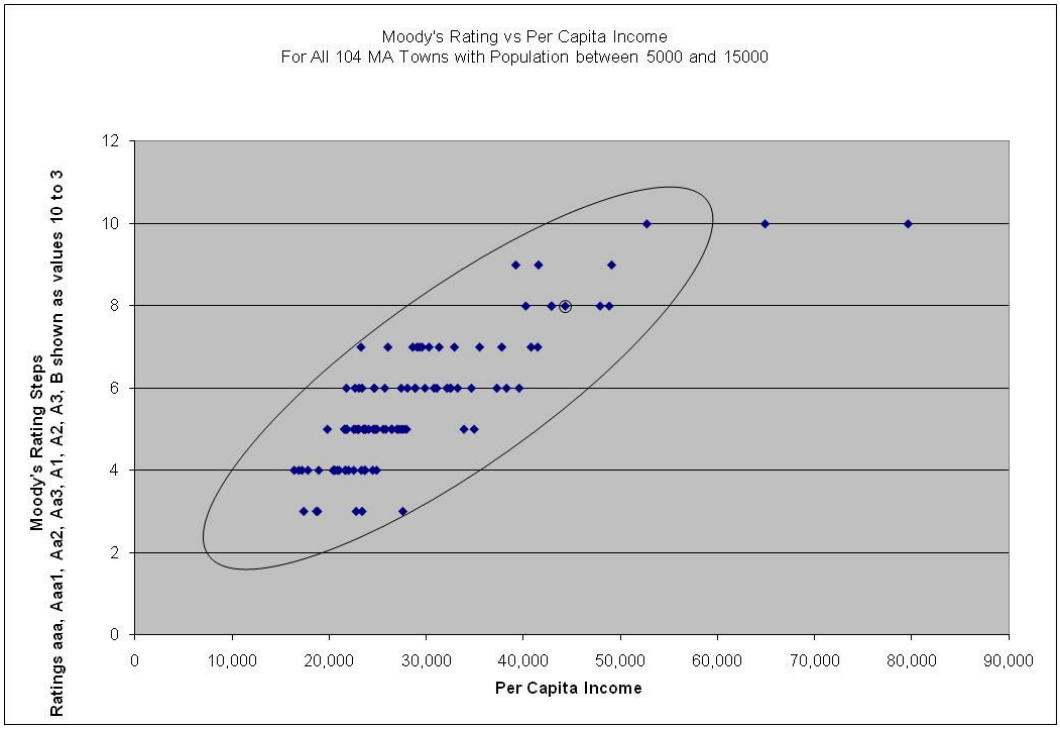
Analysis of the Claim of Delivery of Improved Bond Ratings

We have twice conducted careful examinations of the empirical data, in 2005 and now in 2010. Each time the procedure and results were the same. This paper will describe the most recent study.

We examined all 104 Massachusetts towns with populations between 5000 and 15000 in the Mass DOR database. It is conventionally claimed that cash reserves should be some percentage of budget, so as to positively influence bond ratings. It makes intuitive sense that this number would be the one to influence bond ratings, if there is any such influence. In fact the DOR data shows that there is no correlation between bond rating and cash reserves as a percent of budget, or Stabilization Funds as a percent of budget, (the R2 statistic is about .04, a traditional indication of non-correlation). What actually drives bond rating is the average per capita income of the community. (The R2 is .70.)



The chart above shows bond rating in the vertical and cash reserves as percent of budget on the horizontal. There is a point on the chart for all 104 towns, with Southborough in the tiny circle. Essentially it is a random scattershot picture. This shows that there is no relationship between reserves and rating, and this is what the R2 statistic also tells us. Notice that there are many towns with higher reserves and lower ratings, and some with lower reserves and higher ratings. You could increase reserves and then find yourself occupying the position of one of the towns with higher reserves and a lower rating. Therefore putting extra tax dollars into reserves is like paying an oil truck to pump oil at your house without specifying whether it should go into or out of your tank. You pay them $2.50 per gallon pumped. You pay either way, and just hope it went in and not out. We don't normally behave this way or recommend this action.



The above chart shows Per Capita income and Bond Rating. Notice that the data trends upwards to the right. The higher income level of the people in a town, the better is the bond rating. This is a graphic illustration of what we expect to see when the R2 correlation is 0.70.

This data doesn't support a claim that cash reserves never enters the mind, or passes the lips, of someone doing a rating, but rather that, in the end, they don't actually use this factor in a way that would be worth paying for. Furthermore it may explain why employees of bond rating companies, when asked how to increase a Town's bond rating, urge municipal officials to increase cash reserves. Such a suggestion is a far more palatable response than telling a mayor or a Board of Selectmen the painful truth, "The only thing that will help is higher per capita income. We suggest you get wealthier."

In addition to the foregoing analysis and supporting it, we have found that a technical publication from one of the major bond rating agencies (S&P) agrees with this finding. It says that reserves are not a significant empirical factor in its own bond ratings particularly in small municipalities. The factors that they say do correlate with bond ratings were the ones we found in 2005 and 2010 in our empirical analyses. This correspondence strengthens our trust in both the S&P report and our own results.

Now note that it would be the exact opposite of these findings that the proponents would need to present to satisfy the *Delivery* standard and their burden of proof. The proponents must show solid empirical data that high reserves actually *Delivers* improved bond ratings. Without such proof of delivery, why would we buy this? Given that Standard and Poors, one of the major rating agencies, says that this doesn't exist, because it doesn't actually affect their own ratings, and that we can't find it in the DOR data,

proponents are unlikely to find it. However, we would welcome any empirical data that supported an alternative assessment. Absent such, we can no more recommend this reason for maintaining reserves than we could recommend awarding a contract to a vendor known to default on delivery.

Analysis of the Claim of Cost Savings for Taxpayers

Now let us suppose, contrary to all available facts, that higher cash reserves actually reliably deliver better bond ratings. A better bond rating represents an opportunity to borrow money at some time in the future at a lower cost than would be the case with a less good bond rating. If there was a way to buy this, it would be a discount on the price of future money. Is the price of this discount worth its cost?

In this case, to estimate the cost, let us make some assumptions that apply to "normal" times. Suppose that we are considering adding $1.5 million to the cash reserves, an amount that would require each Southborough taxpayer to pay an additional $377 in FY 2011. Suppose that money in the town coffers earns 3% per year, which is used for other town services and reduces the tax rate by that much. Suppose, contrary to available evidence, that this extra reserve results in a better bond rating that cuts the Town's cost of borrowing by ¼ of a point, from 4.5% to 4.25%. Suppose that the average cost of consumer credit is 8.5%. This is what it costs the consumer for anything they have to pay for, and represents an average of such things as consumer loans, credit card debt, car loans and mortgages. This represents the annual cost for them to pay taxes to keep $1.5 million in the Town coffers. With these assumptions the net annual cost to the Taxpayer of the better bond rating, after assuming the interest benefit earned by the Town, is $82,500 per year. (Now it must be emphasized that we would **never** spend $82,500 per year with just the hope of *Delivery*. But, we're going to assume, contrary to fact, that there is such a delivery of better bond rating.) So the question is how much would we have to borrow in order to make it worthwhile to spend $82,500? The answer is that we would have to borrow more than $49.8 million at the lower rate for 20 years in order to begin saving money. (At 20 years our annual payment would be $3.829 million per year vs. $3.746 million at the better rate, a savings of $82,500.) $49.8 million is far too large an amount of new debt to consider this worthwhile. Note that the benefits must come primarily from new debt, since most of the old debt is at fixed rates. For comparison, the value of all accumulated Town debt, net of State school reimbursement, as of FY2009 was only $20.5 million. This current number for this Town is considered high, as it includes substantially new school buildings and a major land purchase. The $49 million number is beyond consideration.

One can quibble with the numbers in the preceding paragraph. This is because, at all times, such sets of numbers drift up or down depending upon the state of the market. However, they have a strong tendency to move together, such that the same answer to our question is always given. These basic points which are sufficient to establish the result and which essentially never change are the following:

- the cost of municipal borrowing is significantly lower than the cost of consumer borrowing,

- American consumers maintain relatively high debt levels, such that their cost of borrowing is the correct measure of their cost of paying any bill that arrives,
- the amount by which the bond rating can affect the interest rate for the Town is very small. (In fact the assumption that it might move by ¼ point in the above calculation is generous. 1/8 of a point or 15 basis points might be a more reasonable assumption.)

Note that although one could argue that not all consumer bills, such as marginal tax bills of a few hundred dollars, affect consumer borrowing, in fact a great deal of the fraction of such outlays in American suburban communities is subject to short term credit, or affects the ability to pay off such outstanding debt, and hence is properly valued at the cost of money. However, even if one were to assume that it should be valued at the lower rate of the average earnings on consumer investments, the constraints on municipal investment by the State usually create a nearly identical spread between average market investment returns, over the long run, and municipal investment returns. Therefore, overall, it is not possible, in a fair-minded way, to suppose that voters could save money by leaving extra funds on deposit for the Town's benefit.

It should now be clear that, without new empirical evidence supporting both *Delivery* and *Net Benefits,* net taxpayer savings from improved bond rates simply do not exist. Therefore we should stop any talk about recommending higher reserves to voters based on Bond Rating arguments. Doing so will help us to look at the real question. Before we get to the real question, a few more arguments for higher cash reserves must be addressed.

The Argument based on Funding Capital Items

It has been said that we should save in advance for capital items, using the Stabilization Fund, so as to avoid having to pay interest on debt to bond holders.

The first problem with this argument is that this funding method does not align those who pay with those who benefit from spending, whereas bonding does. On average about 5% of the population of the Town changes every year. Major capital assets typically have a useful life of more than 20 years and are paid for over a 20 year period. If we save money for 20 years and then make a purchase, only 40% of those who contributed to the purchase are here at the time that the purchase is made. This means that less than one quarter are here to receive the benefits of the capital item's useful life. If we borrow, the asset is paid for by those who use it, and if they move away they both stop paying for it and stop gaining its benefit.

The second reason why bonding is better than savings is that the cost of municipal borrowing is less than the cost of consumer borrowing, and similarly for municipal returns on savings vs. market returns. Therefore, taxpayers should never leave their money with the Town, but instead are better off to let the Town borrow for its legitimate needs.

The Argument based on Tradition.

Some people may not want to rely on data in making a recommendation because they may not trust their ability to distinguish good information from bad in this category. If this is your view, you may rest assured that the Town survived for decades without any Stabilization Fund. The 1990s were the aberration. Until approximately 1990 the Town had no Stabilization Fund and State law prohibited carrying "permanent" Free Cash balances. The author of this document served on Advisory for five years in the 1980s during which we had no such fund, and felt no need to create one. Apparently the Town managed for hundreds of years without such a fund. The possibility arose only during the high growth 1990's. Having a fund with "only" $400,000, or no fund at all, would be a return to our longstanding tradition, from which the "go-go" 1990s was the aberration.

Arguments based on "It's nice to have the money."

One will sometimes hear it said when appropriating from Stabilization Fund, "See, it is nice to have that money," as if, somehow, that means that it was wise to keep money there.

Of course it is nice to have funds available. That is not the question. An exact analogy to this situation is this: imagine you find a mattress stuffed with cash. Of course you are happy to find such a mattress when you need to buy something. We are not trying to decide whether cash makes us happy. The question is, should you put your money into a mattress? Specifically, "Does it ever make sense to cast your vote to place your money into a Town savings account, or can you find a better place to keep your money?" Alternatively, "When you find that the Town is holding money that it isn't using, should you vote to leave it there, or look for someplace better for it?" The Stabilization Fund, if maintained in excess of about $400,000, simply costs taxpayer's money by keeping it with the Town instead of keeping it in their own accounts, just the way the mattress wastes interest one might earn in a bank. If taxpayers keep money with Town, they will have less money in the future for everything, which also means they will have less money for more taxes for more Town services in the future, if they so choose.

Do Benefits equal Costs for the Existing Fund?

An interesting question to think about is, "Where are the benefits of having kept high Stabilization Fund balances for the decade 1995 to 2005?" The average balance was $2.9 million. If we assume the cost to taxpayers of that to have been the average difference between the cost of consumer credit and the cost of municipal credit, about 3%, (or alternatively, the average difference between market investment returns and municipal investment returns, also about 3%), then the cost of this balance was about $920,000 over the life of the fund thus far. Spending $920,000 of taxpayer money should have conspicuous benefits. Where are they? What did we get?

Note that the benefits of the Stabilization Fund cannot be the things we spent the principal for, since, either it would have been possible to collect that in taxes at the time it was needed, without having the interest cost, or the voters would have decided in

individual cases that they didn't want those things, a prerogative from which there is no appeal. In fact, benefits from the interest costs of the high balances of that era are nowhere to be found. The Stabilization Fund was an economic cost to the Town's taxpayers that paid no benefit. Trying to find the benefit is like asking where is the interest on money that has been left in a mattress. It is lost.

The foregoing may dispose of most of the claims of benefits for higher cash reserves. Higher cash reserves cost money in the form of the difference between consumer's prevailing interest rates and municipal prevailing interest rates. This gap is the cost. Obviously, the gap varies depending upon market conditions. Sometimes it may be as low as 1%, sometimes as high as 8%, but it essentially is always there. Higher cash reserves do not save voters money by lowering the cost of borrowing.

Now let us move on the question of whether a rational voter might choose to accept such a cost. This is the real policy question, which the above claims tend to obscure.

The Insurance Theory of Higher Cash Reserves.

All insurance costs money, but that doesn't mean it shouldn't be bought. Insurance costs money in the sense that, unless the insurance company is planning to go bankrupt, purchasers must assume that they will pay more in insurance premiums than they can expect to gain in claims payments over the life of the policy. Nevertheless it may be rational to buy insurance for losses that are discontinuously large compared to assets. Conversely, I may not buy insurance against losses that I can easily pay for. I insure my house against fire, but not my cup of coffee against spillage.

Note also that it is possible to pay for insurance and yet have the insurance fail to deliver when you have a claim, a fact which Katrina victims learned. The point is that all decisions about insurance must be accompanied by an assessment of the chance that the insurance may not pay the benefit when the insured believes it is needed. The purpose of a written insurance policy is to give the insured some idea of when they might expect benefits. The purpose of independent ratings of insurance companies is to advise buyers about the adequacy of the insurance company's financial reserves.

We may now analyze the question of whether Town cash reserves should be regarded as a kind of insurance that the voter may reasonably choose to buy. The price of this insurance is the interest cost described in the foregoing section.

Exactly what would such a voter be insuring against? A voter might say, "In an economic downturn people will not want to vote for the higher taxes which will be necessary to keep Town services and organizations unaffected. Therefore, to insure against such service declines I will keep some money in the Town coffers instead of in my own accounts. I do this even though I recognize that this costs me money, just as insurance costs me money." The question for Advisory is, "Should we recommend this line of thinking to a voter?" At the same time we must acknowledge that all insurance questions have a personal component of risk assessment in the answer.

The answer to this question for Advisory comes from answering several subsidiary questions needed for any insurance.

1. Is the risk of a decline in Town services discontinuously large with respect to the types of everyday losses which the average voter chooses not to insure themselves against?

   The risk in this case can be seen and avoided at exactly the time of potential loss by simply increasing taxes. The kinds of discontinuous losses we usually insure against are events that unexpectedly happen to us, not decisions we participate in.

   Also, in this case, the nature of the possible loss is not normally considered large for any individual taxpayer. For example, pupil-teacher ratios increase by 10%, the Dare program is discontinued, the library is open fewer hours. The impact of these losses are not the type that most people would insure against, but in fairness, risk evaluation is purely a personal decision. The unique aspect of this situation however is that, if enough people consider them catastrophic at the time, they can simply increase taxes and avoid the loss of services. If a Town Meeting vote could prevent a tornado, presumably tornado insurance would be considered less necessary.

2. Now we must examine the question of whether this insurance will deliver the expected benefits?

   Specifically, there is the risk that after paying the cost of this insurance the cash reserves will be inadequate, or simply not be used, to prevent the decline in services. There is not, and cannot be, a binding policy stating when benefits will flow. Town Meeting has to decide, with no rules to govern it, "Is this year the 'rainy day' when we should spend the funds? What if next year is worse?" Either decision can result in a failure of the insurance to achieve the benefit desired by a particular voter. If you had voted during the 1990's to build up a "rainy day fund" to protect your children from teacher layoffs, can you now be sure that that insurance will deliver the benefit you were hoping for? You have spent your money but have no policy that says when you are entitled to benefits. If you can't be sure, why buy any of this insurance? Isn't there a risk that the person who has paid for this insurance will simply be faced with voters who want to horde money, and not receive the benefit they have been paying for? We must conclude that this "insurance" is very uncertain of delivering when needed.

   Imagine for comparison that Advisory learned that the Town's liability insurance came with no written policy, and the company's assets were not known to be adequate to the risks against which they were selling insurance. If this were a line item for voters, could we recommend it? This is the central problem with recommending reserves on the insurance theory.

3. From the viewpoint of Advisory, are there hidden benefits to periodic organizational cutbacks that, in the presence of such insurance, if it were effective, we would risk losing?

There is an argument that government is already far too insulated against those market forces that in other sectors cause prioritization to drive out unnecessary costs. If we always operate with this insurance, and it succeeds, we will never be forced to decide what the Town really needs.

On the other hand, such positive responses to budget adversity require organizational and managerial flexibility that have gradually been driven out of the public sector precisely because it has been insulated from market gyrations.

What is Really Going On Here?

After all of the foregoing, why does this question have such enduring controversy? To answer this, start by imagining that instead of delivering advice to voters as taxpayers, the Advisory Committee gave advice to a monarch, a king, for example. Our job was to make recommendations that would provide for the smooth operation of the king's government. Then, of course, large balances would be beneficial. The king doesn't care about some waste of the subject's money. Now imagine that instead of advising a king, we are advising the Town Government, as a government. If there was an entity called "The Town", distinct from its voter-taxpayers, then the best advice might be "Keep all the money you can." Attending as many meetings as we do, it is easy to become confused about who we are advising. The particular difficulty for Advisory members is that we must provide advice to voters, and only to voters. When we must say voters, "Here is how we recommend you vote," it becomes very hard to find a rational reason for why *they should cast their vote to keep their money* in the Town's coffers.

Conclusions

The view that higher cash reserves are a kind of insurance policy against loss of government services at least has the rational starting place of acknowledging that such reserves cost the taxpayer money. People's willingness to buy insurance varies based on their personal risk assessment. However, three factors make it very difficult for Advisory to use this viewpoint to support higher reserves. The three factors are: the risks are not usually considered catastrophic and can be avoided by the voters' choice to raise taxes, the insurance comes without a policy and without known adequacy of reserves, and there may be some advantage to periodic contractions.

Instead of keeping higher cash reserves Advisory might instead choose to take the position that it will recommend taxes as needed to support appropriate services, and that if, occasionally, the voters decline to raise their taxes, it will accept this as a way to benefit, in the long run, as occasional forced elimination of lower priority spending.