Answer the three questions below as completely as possible. The questions are weighted equally.

1. The authors of the case study -- Michael E. Howell-Moroney and Jeremy L. Hall -- explain the crisis in Jefferson County, Alabama as a “collapse of accountability and transparency in public finance.” To what extent could this financial debt crisis also be explained as a result of unregulated financial markets, Wall Street greed and political corruption? Are these explanations mutually exclusive? Which is strongest?

2. While the authors of the case study conclude that there was no single decision completely responsible for Jefferson County’s debt crisis, the crisis might have single cause -- poor incentives. The consent decree, the consolidation of sewer systems and the political nature of this decision making all the result of incentives that do not reflect the social cost and benefits of decisions.

   a. Explain the general reason why poor incentives result in bad decisions. Why are they bad decisions?
   b. How did the consent decree and the sewer system consolidation influence the incentives policy makers faced?
   c. Describe the role of incentives in each of the major decisions made described in the case study.
   d. Suggest ways you would change the decision making environment and the incentive structure and how each would have improved the decisions made in Jefferson County. Would these changes have allowed the county to skirt its financial crisis?

3. In September 2010, (after the case study was written but before it was published in PAR) the Alabama Circuit Court Albert Johnson appointed a receiver for the deeply indebted Jefferson County. John Young, president and chief technology officer of American Water Works Service Co., now serves as chief executive of the newly formed Delaware limited liability corporation which oversees the sewer system. Bank of New York Mellon Corporation, the trustee previously hired to collect bond payments and protect the interests of bondholders was very pleased with the court’s decision. Mr. Young has the power to operate and administer the sewer system, including the ability to raise rates, as allowed by the bond indenture. Generally speaking, the receiver’s powers to operate the system appear to be fairly broad, though Judge Johnson did caution that sewer rate increases should be reasonable and carefully implemented. “The Receiver shall have the right to, generally, do, execute and perform any other act, deed, matter or thing whatsoever that the Receiver, in its business judgment, reasonably believes ought to be done.” Mr. Young has indicated that sewer rates will be increased but that the increases will be capped at 25% annually, at least initially.

How do you think the appointment of a receiver to oversee the sewer system will affect the dynamics of decision-making in Jefferson County and the public’s requirements for responsible and responsive government? Explain.
Waste in the Sewer: The Collapse of Accountability and Transparency in Public Finance in Jefferson County, Alabama

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Following failed auctions for sewer debt in April 2008, major bond rating companies downgraded Jefferson County, Alabama’s bond rating to D (default) triggering massive mandatory payments by the county to its creditors. At the time of writing, the county teeters on the brink of actual default and bankruptcy, unable to pay service on its $3.3 billion sewer debt portfolio. If the county defaults, it will be the largest municipal bankruptcy in United States history, eclipsing Orange County, California’s 1994 default. The intriguingly complex tale of the Jefferson County debt crisis is recounted here by identifying and examining failures of transparency and accountability by local bureaucratic and political actors, private financial institutions, as well as the larger regulatory framework governing public finance. Enhanced regulation of local government and the financial sector plus greater local government capacity to close accountability gaps and thus prevent future crises of similar scale in this or other jurisdictions are recommended.

Jefferson County, Alabama, is not a large county by national standards; according to the latest 2007 census estimates, it ranks ninety-sixth among all counties nationally in population. Yet when it comes to bond debt, the county unfortunately enjoys a much higher ranking. With its $4.6 billion debt, the county is sixth in the nation according to recent estimates (Velasco 2005). The county carries a varied composition of general obligation and revenue debt, mostly for school and sewer purposes, but the lion’s share, more than 70 percent of the debt, is composed of the county’s massive $3.3 billion sewer bond portfolio.

In an effort to save on interest expense, the county turned to complicated financial derivative instruments known as interest rate swaps. Briefly defined, swaps are an exchange of fixed- and variable-rate payment obligations between two parties. For example, one party agrees to pay a fixed rate to the second party, while the second party pays a variable rate to the first. Swaps can be used to hedge against uncertainty or speculatively to maximize returns or minimize loss. Swaps are not new to public finance, and numerous state, county, and municipal governments use them as a tool to manage interest costs associated with debt. However, by national standards, Jefferson County engaged in a disproportionately large number of swap agreements, making it extremely vulnerable to exogenous macroeconomic shocks.

In April of 2008, Jefferson County captured national attention as its bond rating, awarded by Moody’s and other bond rating entities, witnessed a precipitous decline, in part because of financial spillover effects from the subprime mortgage crisis. This decline in the county’s bond rating, combined with an inability to sell or borrow funds on the open market without huge interest penalties, put the county in a precarious financial position. The rating crash had an immediate financial impact, triggering collateral posting requirements in its swap agreements and forcing the county to make a sizeable payment that it could not afford. Although the county bought time through a series of negotiated forbearance agreements with its creditors, its sewer bonds hold a default rating at the time of our writing. If the county does not broker a solution, it will become the new “winner by default,” eclipsing Orange County’s $1.6 billion default in 1994.

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accountability and transparency. In this essay, we argue that numerous accountability and transparency failures contributed to a series of decisions and events that collectively led to what could become the largest municipal bankruptcy in U.S. history. In a society that is increasingly reliant on technical and specialized knowledge, governing becomes difficult as principals and their agents often operate in different domains. We argue that reduced bureaucratic and fiscal transparency and failure on the part of key agents in the public and private spheres to act ethically and responsibly conspired together to put the county in an extremely vulnerable fiscal situation. When the U.S. economy began its rapid decline in 2008, the conditions were ripe to bring about the county’s financial demise.

In many ways, the Jefferson County case serves as a cautionary tale for public administrators. Scholars in public administration have embraced the values of openness and transparency as keystones of accountable government (see, e.g., Feinberg 2001; Koppell 2005; Piotrowski and Rosenbloom 2002; Roberts 2004). Transparency serves as a check on government officials’ actions, but complexity has strained traditional forms of transparency; open records and open meetings make information available, but the complexity of highly specialized fields such as civil engineering and public finance is rarely understandable to the average citizen, and even to elected officials in many cases. O’Brien, Clarke, and Kamieniecki remind us that “[t]he growth in the size of the bureaucracy and the development of immensely technical and complex fields of specialization have placed tremendous powers in the hands of public officials” (1984, 339).

It seems that with growing technical specialization, even “traditional” transparency is insufficient for issues of great complexity. Unfortunately, Alabama has lagged behind by traditional transparency standards. While the state has one of the oldest open records laws in the country (Code of Alabama § 36-12-40), an open meetings law with procedural requirements was passed only in 2005. As transparency goes, Alabama has improved, but the tradition of secrecy is strong. As a case in point, a 2003 study showed that Jefferson County and the city of Birmingham fared worse than the state average in handing over public records—and worse than most counties and municipalities surveyed in the metropolitan area (Archibald 2003).

Jefferson County’s debt crisis provides fertile ground for illustrating the failures of both transparency and accountability. Our essay recounts the complicated story behind the debt crisis in Jefferson County. We identify and examine, in their context, the fateful steps that led the county along a path of rising indebtedness and risk. We suggest that a lack of local government oversight, insufficient local government capacity, and a lack of regulation in the financial sector, particularly as it pertains to interest rate swaps, are responsible for the current dilemma, and we suggest reforms to correct each. We begin with a short primer on public finance and then present an extensive case history. The essay concludes by critically examining the Jefferson County experience to identify key failures of accountability and suggest lessons that actors in the public finance arena should heed in order to avoid similar crises in the future.

Public Finance in a Nutshell—A Primer on Public Debt

Capital budgeting is a reality of modern governance, and public finance provides the framework for purchasing capital goods with long useful lives and hefty price tags. Two general approaches are used to finance capital projects: debt and cash. There are advantages and disadvantages to each. Cash financing, otherwise known as “pay as you go,” requires saving for large expenditures, placing the burden on past and current generations for future public infrastructure. Debt financing through municipal bonds, on the other hand, allows immediate purchase and distributes the cost across the useful life of the asset.

State and local governments are required to engage in capital budgeting under Statement no. 34 of the General Accounting Service Board (GASB 1999). This process is used to identify capital needs and to set the capital budget. After considering available resources, a local government determines the amount of credit required and then issues a public offering, either competitive or negotiated, in which interested underwriters bid on the bonds. Local governments achieve efficiency by competitively auctioning debt for these projects to the bidding underwriter who pays the highest price (which usually translates into the lowest interest rate, although purchase at a premium or discount can cloud the prima facie true cost).

Sometimes bonds are difficult to market because of the issuer’s creditworthiness, meaning that the issue has a limited ability to pay, or is perceived as a high risk for default. Three private firms rate municipal debt, much like credit ratings for individuals: Moody’s, Standard & Poor’s (S&P), and Fitch. Higher bond ratings (the highest are AAA for S&P and Fitch, Aaa for Moody’s) are given to governments with excellent financial stability and the ability to pay, which translates into lower risk for investors. This enables the governments to sell the debt at a low interest rate.1

Local governments seek external credit enhancement by buying bond insurance to cover debt service payments to investors in the event the government fails to make required debt service payments. Corporations that insure municipal debt (Ambac, MBIA, and FGIC, for example) are rated on the basis of their financial status; they are then able to sell bond insurance that carries their rating. The interest cost savings to the government over the life of the bonds (resulting from selling bonds at a lower rating than otherwise would be possible without insurance) are usually sufficient to offset the cost of insurance. As we shall see in greater detail later on, bond insurance plays a central role in the Jefferson County debt crisis. Rating agencies began to review their ratings for bond insurers in light of those insurers’ recent exposure in the subprime lending market, resulting in the downgrading of all three companies’ ratings (WM Financial Strategies 2008).

Long-term municipal debt takes two primary forms, although there are variations. General obligation bonds and revenue bonds are distinguished along several key dimensions, including the source of debt service, nature of the project funded, whether they are subject to debt limits, the cost of issuance, and consequently the nature of the rating.

The source of debt service refers to the obligations that the government makes to repay the debt. General obligation debt instruments commit the full faith and credit of the issuing government to repay the obligation from any revenue stream. Revenue debt is repaid by the net operating revenues (annual gross revenues minus operating...
and maintenance costs) of a public enterprise such as utilities, airports, or parking garages. The consequence of these different obligations is a rating system that distinguishes between the issuer (the government entity) and issue (the specific debt instrument). General obligation debt considers the jurisdiction’s general ability to pay, and it is referred to as an issuer rating. Because revenue debt pledges specific revenue sources, usually user fees, to service debt, the debt instrument in question is rated in what is referred to as an issue rating.

The nature of the project to be financed helps determine the type of debt to be utilized. In many cases, revenue bonds are used by enterprises to generate revenue through service charges or user fees. In principle, general obligation debt is used for projects that do not generate revenue, such as roads and government office buildings. In practice, however, general obligation debt can be, and is often, used for revenue-generating projects because of the cost advantages (i.e., lower interest rates and transaction costs) over revenue bonds (Vogt 2004).

The expense to issue revenue bonds is considerably higher than that of general obligation debt. Revenue bonds require additional components not found in general obligation debt instruments, including a feasibility study and covenants and indentures to protect investors. One key covenant is a mandatory coverage ratio—a ratio of net operating revenues to debt service requirements—to ensure continued solvency. These additional components increase the amount of legal work and legal fees associated with underwriting the debt, and so increase the total cost of the issue. Vogt (2004, 327) reports that general obligation bonds cost only $8.93/$1,000 of debt on average, compared to $14.75/$1,000 of debt for revenue bonds.

Although general obligation debt is less expensive, it comes with one significant drawback—limitations. Either through state constitutional provisions or legislative action, most states have limited the amount of general obligation indebtedness that their municipalities can assume. These restrictions are usually based on a proportion of the net assessed value of taxable property or an amount per person. Most state debt caps apply only to general obligation debt, however, because the public enterprises using revenue debt are supposed to be self-financing. The use of revenue bonds, though more expensive to issue, enables municipalities to bypass the general obligation debt limits established by their states. A second requirement intended to limit indebtedness is voter approval. Some states have no such requirement, others require approval of the legislature, and some require referenda to approve a specific debt issue (GAO 1996, 375; Kiewiet 1995). These requirements may differ in their application to all debt, to debt by type (general obligation versus revenue), or to debt beyond certain limits.

In Alabama, general obligation debt is subject to voter approval and to caps, defined as a percentage of the assessed property value. According to the Code of Alabama 1975 § 11-81-110(a), however, no referendum is required when the public improvements will be paid by a fee assessed to the property abutting the improvements; under § 11-81-141 and 11-81-142, bonds may be issued for revenue-generating projects by resolution with a majority vote of the governing body when quorum is present. The code also designates a 30-year term as the maximum for general obligation debt and 50 years for revenue debt (§ 11-81-6).

**Jefferson County’s debt crisis arose from a large portfolio of revenue bonds intended to finance the repair and expansion of the county sewer system.**

The Jefferson County debt crisis arose from a large portfolio of revenue bonds intended to finance the repair and expansion of the county sewer system. In essence, the story of the county’s debt crisis can be broken down into three major phases, illustrated in figure 1. In the first phase, the county is forced, by consent decree, to upgrade and repair its massive sewer system. The resulting repairs and upgrades go far beyond the scope of the consent decree, leading to an attendant growth of debt and sewer rates, spurring widespread discontent among ratepayers. In the second phase, the Jefferson County Commission, sensitive to the rising ratepayer discontent, opts for risky financial solutions to the rising debt burden, refinancing a large share of the sewer debt in the form of auction rate bonds and nearly 20 different interest rate swaps. In the third phase, the unforeseeable happens: the subprime mortgage crisis spills over into the municipal debt market, triggering a series of events that puts the county on the brink of default. We now turn to an in-depth exposition of the steps that led to the county’s debt crisis.

**Phase 1: The Debt Explosion**

**Roots of the crisis: (Un)informed consent?** The Jefferson County bond crisis finds its roots in a federal lawsuit resulting in a far-reaching consent decree that required a monumental overhaul of the county’s sewer system. Sewer system problems were first noted in earnest by the Cahaba River Society, a grassroots environmental citizen group. In a 1993 report, the group blasted Jefferson County for failing to properly oversee the sewer system. In particular, the report noted that the county sewer system was regularly discharging untreated raw sewage into two major river systems within the region, the Cahaba River and the Black Warrior River.

According to the Cahaba River Society, these discharges of raw sewage into the rivers seemed to be coincident with wet seasons and large storms. Because of deficiencies in the sewer system, large amounts of storm water and groundwater were getting into the sanitary sewer system, creating an excessive burden on end-of-the-line treatment facilities, a process known as infiltration and inflow (Cahaba River Society 1993). When the amount of mixed storm and sewer water became too much for the sewage treatment plants to handle, the plants would simply release some of the untreated water containing raw sewage directly into the rivers, a practice called bypassing.

Later in 1993, the Cahaba River Society joined other co-plaintiffs, including the U.S. Environmental Protection Agency, in a suit against Jefferson County alleging that the county’s dilapidated sewer system and its associated sewage discharges violated the Clean Water Act. After nearly three years, the case was settled by a comprehensive 1996 consent decree that required the county to consolidate the sewer systems of more than 20 municipalities...
As the sewer overhaul program's history unfolded, there were to be many upward adjustments of initial cost estimates, ultimately leading to more bond issues and debt accumulation. Because the county sewer system generates its own revenues, the county was able to finance its sewer projects through revenue bonds (technically known as warrants). Figure 2 illustrates the growth of the county sewer construction debt over time. Before the county began issuing new debt to pay for the sewer overhaul, the consent decree required massive repairs across county sewer system.

Of course, implementing this consent decree would be no small undertaking. Many observers naturally began to ask how much such a project would cost. Early estimates of program costs in 1996 ranged from a low of $250 million to a high of $1.2 billion (BE&K 2003). As the sewer overhaul program's history unfolded, there were to be many upward adjustments of initial cost estimates, ultimately leading to more bond issues and debt accumulation.

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Figure 1 Summary of Key Events in the Jefferson County Debt Crisis

- Consent decree requires massive repairs across county sewer system
- Unnecessary expenditure, mismanagement and corruption lead to large increases in program costs
- Rising program costs drive issuance of more and more debt, totaling $3.3 billion by 2003
- Rising debt costs trigger automatic rate increases for sewer customers
- Rate increases anger sewer rate payers who demand a solution

- Pressure from ratepayers leads county to consider some sophisticated and complex financing arrangements to save on debt costs
- County refinances much of sewer debt into variable rate and auction rate debt
- County enters into a series of interest rate swap agreements with intention of reducing interest costs

- Macroeconomic shocks from subprime crisis spill over into municipal debt market through ratings downgrades on bond insurers due to their subprime exposure
- Insurer downgrades lead to downgrades of county debt, triggering massive interest rate increases on county's variable rate debt
- County is forced to make large payments because of rating downgrades
- Payments cannot be met by county. Ratings agencies assign a default rating on sewer debt and a widespread county financial crisis ensues

county had about $280 million in outstanding sewer warrants. The first series of warrants in 1997–98 totaled just over $600 million. This issue was also used to pay off, or “refund” the pre-consent decree debt.

The county issued an additional $952 million in warrants in 1999. In just two years, the debt had grown by nearly $1.3 billion (just exceeding the highest initial estimate to complete the consent decree work). In 2001, the county issued another $275 million of warrants, followed by more warrants in 2002 totaling $949 million (the 2002 series was used to refund portions of the 1997, 1999, and 2001 warrants). The final series of revenue warrants was issued in 2003, totaling $2.24 billion (this series was also used to refund portions of earlier issues). This last series of bonds was somewhat unique in that they were auction rate bonds.

Auction rate securities are long-term bonds with variable short-term interest rates. Interest is paid to bondholders during the current period using an interest rate (the clearing rate) determined in the prior auction period (Skarr 2004). When there is insufficient demand to purchase the securities at each auction period, the auction fails and the interest rate automatically adjusts upward to a market-indexed rate to compensate willing sellers who are unable to relinquish their positions. Auction rate securities carry greater risk to borrowers than does fixed rate debt, and interest rate swaps (discussed later) are customarily used to limit that exposure (Skarr 2004). All told, the county issued just under $3 billion in new sewer warrants accumulating a total sewer debt of $3,260,895,000 in 2007, which translates into a 1.075 percent increase in the county’s debt from 1997 to 2007.

The price of largesse. As the county’s debt grew, many were perplexed by the astronomical increases in program costs. After all, the highest initial estimate for the program was only $1.2 billion. By 2003, the estimated cost of the sewer upgrade program had risen to $3.05 billion, an increase of more than 190 percent from the highest 1996 cost estimate (BE&K 2003). There are several reasons why program costs grew. Some cost increases were unanticipated and legitimate, but others were attributable to mismanagement and outright corruption.

First, the consent decree required the county to consolidate many individual municipal sewer systems into one countywide system. This requirement certainly made estimating a firm cost difficult. At the front end of the process, the county simply would have no way of knowing just what the scope of repairs would be in each municipal sewer system that it was taking on. Subsequent discovery of extensive infrastructural problems certainly contributed to significant upward revision of the initial cost estimates for implementing the consent decree (Jefferson County Commission 2000).

The second reason for rising costs was the addition of numerous sewer improvement projects that, though they perhaps constituted an improvement over existing facilities, were not really required under the terms of the consent decree. The director of the Jefferson County Environmental Services Department, the county office that had direct control and oversight over the sewer program, asserted that almost all of the sewer and facility upgrades bankrolled through new debt were required under the terms of the consent decree, though subsequent reports cast doubt on that claim (Velasco 2005). An analysis by the Birmingham News estimated that one-third of the sewer upgrade projects were not required by the consent decree (Howell and Blackledge 2001). An independent investigative report by BE&K Engineering initiated by the Jefferson County Commission echoed these criticisms, finding that many of the projects were not necessary under the terms of the consent decree (BE&K 2003; Blackledge 2003).

A third reason for the large costs associated with the county’s massive sewer infrastructure improvement program was a lack of oversight in bidding and managing contracts. According to the BE&K report, early sewer work beginning in 1996 cost the county much more than the national average. Comparing just one component of the sewer work, the report indicated that “Jefferson County paid $10–$20 more per linear foot . . . than other locations in the southeast U.S. during the 1996 to 2000 period. Based on approximately one million feet of pipelining installed between 1996 and 2000, this represents between $10 and $20 million of additional cost” (2003, 10–14). The report identified additional problems as well, noting that the county Environmental Services Department did not have the requisite expertise to manage such a large program (BE&K 2003).

The final reason for growth in the cost of the county’s sewer program was inflated costs attributable to waste and corruption. To date, 21 county employees and private contractors have been indicted by federal prosecutors in connection with the county’s sewer program (Velasco and Walton 2007). Numerous no-bid contracts and change orders were approved by county officials in exchange for bribes and other favors. Though exact costs are difficult to estimate, it is clear that corruption was a major contributor to the inflated costs of an already severely distended sewer program (Velasco 2007). One local critic offered a pithy judgment on corruption-induced expenditures, saying, “They blew money like a drunken sailor” (quoted in Velasco 2007).

**Phase 2: Risky Refinancing**

**Swapping ratepayer discontent for financial risk.** As the county’s debt began to increase, there was a need to raise more revenue to service it. Bond indenture documents required a debt coverage ratio (defined as net revenues available divided by debt service costs) of 1:10. In 1997, the County Commission adopted an Automatic Rate Increase Ordinance, which required automatic sewer rate increases.

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**Figure 2 Growth of Sewer Debt, 1995–2007**

if revenues were insufficient to cover debt payments. As the county’s
debt load rose from 1999 to 2004, the covenanted coverage ratio
fell below the 1:10 threshold specified in its original indentures for
several years (figure 3). This spurred a series of dramatic sewer rate
increases; the average household sewer bill rose from $13.48 per
month (1995) to $62.90 per month (2008), an increase of more
than 368 percent.

Viewing the county’s growing debt and the growing cost of sewer
services to households side by side, figure 4 demonstrates the joint
growth of debt and residential sewer rates from 1995 to 2007. Particu-
larly striking is the separation of the time series after 2003. In
that year, sewer debt plateaued when the county issued its last series
of sewer warrants. But user fees continued to rise, primarily because
of mounting interest payments due on the debt.

The county’s repeated rate increases were rapidly stoking the fires
of citizen discontent. Consequently, the county commissioners,
increasingly wary of criticism by ratepayers, began to look to other
avenues to try to manage the county’s increasing debt burden with-
out further rate increases. On the heels of a 2002 election in which
the sewer debt occupied center stage, the commissioners were eager
to find ways to save on the costs of debt service without issuing new
debt. Though some swaps had been initiated under the previous
administration, under the leadership of newly elected Commissioner
Larry Langford, majorities in the County Commission voted to ap-
prove an unprecedented number of interest rate swaps intended to
reduce the county’s debt service payments and keep sewer rates low.
This seemed to be the ideal solution, for it would generate up-front
cash and keep costs down, obviating the need for further large rate
increases (Sigo 2007a). Before we proceed further, we digress with a
brief primer on interest rate swaps.

A swap contract is an instrument used by local governments
to hedge against future interest rate cost increases. As Petersen
observes, the practice evolved out of a need to accomplish debt
management goals without issuing new debt (1991, 312). Swaps
are often considered speculative instruments because they require
financial managers to develop expectations about how interest
rates will change in the future. Swaps customarily involve an
exchange of payment obligations on debt with floating (variable)
rates for debt with fixed rates, though neither the initial obliga-
tion nor the principal payments are affected (Livingston 1996;

In a swap contract, a municipal debtor swaps its obligation to pay
its own debt service with an obligation to service debt held by a
counterparty, which is usually a bank or financial institution (Vogt
2004, 397). A government debtor holding variable rate securities
and anticipating increasing future interest rate costs will seek to
swap its payment obligations for obligations to pay fixed rate debt
in order to “lock in” the rate before it increases. Swaps can also oc-
cur in reverse; when interest rates are expected to fall, government
debtors will seek to swap their payment obligations on fixed-rate
debt with obligations linked to variable rate securities. The incen-
tive to engage in interest rate swaps is usually a function of lower
transaction costs as compared to refinancing or refunding (Living-
ston 1996).

Swaps involve exchanges of interest payment obligations, but they
also exchange risk between the parties. Variable rate securities carry
significant risks, as we saw with the domestic home mortgage crisis
surrounding variable-rate mortgages. So while swaps offer reduced
cost to the government, they can add risk in exchange. Auction-rate
securities add even more risk than variable-rate securities, as they
are contingent on a specific offering rather than market-established
rates.

Jefferson County entered into numerous swap agreements following
the 2002 election. Some of those agreements exchanged the obli-
gation to pay debt service on their own fixed-rate instruments for the
obligation to pay variable rates on instruments held by banks; in
others, the exchange occurred in reverse. The preponderance of the later swaps exchanged up-front cash payments from the banks and obligations to pay higher variable rates than those received. While early swaps may have been responsible hedges against uncertain interest rate changes, the recent swaps reveal incompetent and myopic management efforts to delay the county's fiscal demise.

Jefferson County entered into $1.5 billion of swaps with Bear Stearns and a $380 million swap with Bank of America under these terms in June 2004, but received only $25 million in cash (Selway and Braun 2008). All told, the county entered into 17 swap agreements between 2002 and 2004, with varying terms and conditions (Moody's Investors Service 2005). The sheer volume of swaps was unprecedented; a former Securities and Exchange Commission (SEC) official stated unequivocally, “I don't think there’s anyone who has been involved in the swaps and derivatives market to the extent that the Jefferson County sewer system was” (quoted in Whitmire and Walsh 2008). These arrangements gave Jefferson County the distinction of being the single largest county holder of interest-rate swaps in the United States at a total of $5.8 billion; significantly, the notional amount of the swap agreements far exceeded the amount of bonds they were intended to hedge (Selway and Braun 2008; Whitmire and Walsh 2008). Unfortunately, the county's high degree of financial leverage under the swaps eventually took a turn for the worse. The payments that the county received under its swap agreements, which were supposed to cover the interest payments on its floating-rate bonds, decreased, widening the gap between the county's obligations and its ability to pay.

Phase 3: Subprime Crisis Spillover

It's the economy, stupid! Although the number of the county's swaps was unusual, this did not raise red flags for the major rating services. In a 2005 rating report, Moody's affirmed the county's A3 (investment grade) sewer warrant rating. Addressing the swaps, the report concluded that “the county's use of derivatives to manage its debt portfolio does not present undue risks for bondholders, but notes that under certain scenarios, the county's financial stability could be impacted by the need to post collateral within a short time frame” (2005, 4). Collateral posting requirements contained in the swap agreements ultimately would prove to be the fatal linchpin for the county as that scenario came to fruition.

Moody's, S&P and Fitch rate the credit of the major bond insurance companies. The insurance companies' stellar AAA credit rating translates into good insurance; good insurance means less risk and lower interest rates for the insured debt. The volatility in credit markets in late 2007 and throughout 2008 had a negative impact on bond insurance companies that previously had extended their purview into hard-hit areas such as the subprime lending market (Pittman 2008).

The negative potentiality was realized in February 2008, when Moody's cut the rating of FGIC's insurance units six levels, from AAA (highest grade) to A3 (medium grade), with the possibility of future cuts (Pittman 2008). The trend continued with rating cuts for MBIA and Ambac in June. The downgrade of those bond ratings meant the rating agency found the insurance companies' abilities to pay not as sound as they were previously, so the bonds insured by those companies were viewed as riskier than they were before the downgrade. As Pittman (2008) observes, "A downgrade of the top rated bond insurers would strip $2.4 trillion of municipal and mortgage-backed debt of their AAA guarantee, throwing doubt on the rankings of thousands of schools, hospitals and local governments around the country” (emphasis added).

This observation turned out to be right. The subprime crisis eventually ended up on the county's doorstep in early 2008 with a hefty bill attached. The trouble began when a series of auctions for the county's variable-rate debt failed, prompting S&P to cut its rating on sewer warrants to B status. The failed auctions also triggered a rise in the county's interest obligations on the debt, forcing the county to pay rates as high as 10 percent on some of its obligations (Braun 2008; Wright 2008b).

When the major bond insurers were downgraded, rating cuts flowed downstream to the county; one of the primary insurers was the now-troubled FGIC. Failed auctions and insurer downgrades resulted in another precipitous downgrade of county sewer bonds by both S&P and Moody's to “junk” status (Wright 2008a). This downgrade triggered lender options specified in the swap agreements. On February 26, 2008, Moody's cut the sewer bonds to Baa3, one step above junk, activating clauses in the swap agreements that allowed the banks to exercise their right to cancel the agreements. These required the county to repurchase the bonds and post $847 million in collateral immediately (Selway and Braun 2008). As banks began demanding that the county make a contractually required $53 million payment, the county refused, leading S&P to declare the county in default (Sigo 2008).

More than two years later, the county has been successful in securing forbearance agreements with its creditors, keeping it technically out of default status (Stock 2008), but there has not yet been a clear resolution as to what the county will do to stave off eventual default. The county's bond insurers are also trying to press a solution from their side. They recently took the county to court in the hope of appointing a receiver for the county sewer system, but it appears that there will be no quick decision from the court (Sigo 2009b). A series of investigations have been launched into the swaps themselves. The SEC undertook an extensive investigation of the financial institutions and local officials involved in the swaps. Former commissioner Larry Langford (who went on to serve as mayor of Birmingham), has been convicted by the SEC on charges of fraud in connection with some of the bond transactions. Moreover, the county has been criticized for its lack of competitive bidding for the swaps, a practice that unfortunately is common in swap agreements (Whitmire and Walsh 2008). Independent analysis by a local accounting firm shows that the county paid $120 million in fees to execute the swaps—more than six times ordinary costs (Sigo 2007b).

A lack of transparency and bidding competition has drawn the SEC's attention to many of the financial giants that were involved in the swap deals, including JPMorgan Chase and Bear Stearns (Selway and Braun 2008). In 2009 the, the SEC brought suit against JPMorgan Chase, alleging that members of the bank had made illegal payments to gain county bond business. That suit resulted in a settlement agreement that freed the county from some of its costly cancellation fees owed to the investment bank (Walsh 2009). In the
aftermath of the SEC action, the county filed its own suit against both JP Morgan and Langford seeking further compensation.

**Long-term ramifications.** Exorbitant sewer rate increases will only continue to grow, reducing the taxing power of other government jurisdictions as household income is further decreased by the sewer user fees. Again, in a county facing economic decline and outmigration, fee increases are problematic for economic development efforts as potential residents and businesses locate in environments with preferable cost structures and government stability.

While revenue bond credit ratings focus on the issue, rather than the issuer, the Jefferson County default signals that the county is unwilling or unable to pay the debt service on its debt. This has implications for public finance in overlapping jurisdictions and overlapping service and tax systems. Because the same resource base is used to compute credit ratings, the same income or assets are used to determine ability to pay. The result is that all debt originating in Jefferson County is now suspect, and the ills will spread to other jurisdictions (Wright 2008a). At least one bond insurer, Financial Security Assurance, which was downgraded by Moody's from Aaa to Aa3, decided to no longer insure debt in the state of Alabama (Archibald 2008).

**A Litany of Failures**

Looking back at the case of Jefferson County, there are a number of apparent failures of transparency and accountability. We isolate the most important failures in each phase of the county’s financial demise.

In the first phase, key breakdowns set the stage for crisis. First, there was a breakdown in controllability between the commission and the department in terms of which sewer projects were necessary under the consent decree. Before the commissioners ordered the program's formal study by BE&K, there was little oversight of the Environmental Services Department, which enabled the department to continue with questionable management practices and expanded scope of unnecessary projects. Second, beyond unnecessary expenditures, the Environmental Services Department was rife with corruption. In the truest sense, officials were not accountable to relevant laws in carrying out their duties in the Environmental Services Department. Not only did the department fail to live up to ethical norms through its involvement in corruption and taking bribes, but arguably its lax contract and financial management was a violation of the public trust. Every senior member of the county Environmental Services Department staff was convicted on charges of bribery and conspiracy (Velasco and Walton 2007).

Accountability breaks down when we consider responsibility for the public purse in Jefferson County. Although debt per capita soared beyond reasonable standards following these deals, state law exempts revenue debt from borrowing caps, and swaps remain legal financial management tools. Here we see that gaps in existing laws and regulations provided an opening for many of the fateful debt finance decisions that the county undertook. In fact, the presence of a gap in the rules made it difficult to measure responsibility prospectively, though certainly the debt crisis makes a retrospective reckoning easier. This gap raises many troubling questions. Should officials have commissioned a study of the county's debt capacity? Should they have considered total debt levels, including revenue debt, though neither the state constitution nor code requires it? These questions are all the more troubling because regular county financial audits failed to raise any significant red flags. It is possible to follow the rules and still act irresponsibly.

Turning to the second phase of the crisis, the County Commission took a hands-on approach, opting to negotiate and execute swap arrangements themselves (Archibald 2008). So controllability, in the traditional sense, plays a minor role. The county finance director carried out the will of the commission in issuing the revenue bonds and in organizing swap arrangements. However, many noted that the county paid exorbitant fees to initiate these swaps, suggesting that a more competitive process might have produced a less costly set of arrangements. It is also curious that the degree of risk exposure for the county was not made more explicit in the county’s regular annual financial audits.

The County Commission felt pressure to keep taxes and fees low in order to keep citizens happy and to further their own reelection goals. Here we see a perverse incentive at work: by narrowly construing responsiveness as finding any means necessary to keep rates low, the commission ignored its larger financial responsibilities. It was too busy treating the symptoms to address the underlying condition. By entering into so many complex and expensive swap agreements, the commission was responsive, but in a very destructive way. It weighted present costs and political expediency more heavily than future risks in its financial calculus.

In the third phase of the crisis, as the subprime market failures spilled over into the municipal debt markets, local actors were less culpable, though their previous actions left the county vulnerable to such macroeconomic shocks. Moody's and other ratings agencies understanted the implicit financial risks associated with the bonds by continuing to validate the county’s actions with high credit ratings. In December 2007, less than four months before the assignment of junk ratings, Moody's affirmed its investment-grade A3 rating on the sewer debt (Sigo 2007a). Many observers warned of the potential problems associated with the U.S. credit boom, which ultimately was responsible for the series of events precipitated by the subprime mortgage crisis. And Moody’s did note that a change in economic conditions could lead to trouble for the county. We contend that this knowledge should have tempered their rating.

It is also clear in retrospect that bond insurers exposed themselves to cross-sector risk by insuring mortgage-backed securities and other financial derivatives associated with the mortgage lending industry. In the third phase, we see a widespread lack of accountability and fiscal prudence in the private sector. Did their failures cause Jefferson County's problems? We think not; the county’s burgeoning debt likely still would have reached crisis proportions. But the chain of events in the bond insurance industry that pushed the county to the crisis point reveal a troubling interdependency among financial sectors in which a crisis in the mortgage sector spilled over into the municipal finance sector.

**Lessons and Pathways to Solutions**

Some responsibility falls to the state and federal government. Specific laws and rules for conducting business should be established or
Jefferson County overextended itself with sewer warrants, some of which were necessary and some of which were not. The use of 40-year warrants is an indication that ability to pay was weak, given the normal 20–30-year life of revenue bonds and warrants (Vogt 2008, 248–49). Referenda for public debt approval is a strong form of direct responsiveness provided for by the Alabama Constitution. However, the absence of such a requirement for revenue debt leaves public officials free to act as they see fit. At least in Alabama, general obligation debt calls for responsiveness as well as responsibility, while revenue debt requires only responsibility. A two-tiered rate and cap system may be needed to control future borrowing, such as a certain number of dollars per person in general obligation debt or in total debt from all sources.

Interest rate swap regulation must be improved. Jefferson County clearly abused swap agreements in an attempt to buy its way out of higher sewer rates and potential default. Of course, the result was higher sewer rates and actual default. There is room to argue about the efficacy of swaps—it might have been an ideal cost-saving instrument if the interest rate market had acted as the commission anticipated. In either event, swaps need to be better regulated at the state and/or federal level to ensure that government participants measure and comprehend the risk imposed by both a worst probable and worst possible situation (Johnson and Ross, 1991). While not limiting swaps outright, regulation can ensure that local officials take a longer-term outlook. Requirements to publish announcements of intended swaps and risk calculations could enhance transparency as well, as could public forums on the topic.

While it is certainly difficult to determine acceptable levels of risk, the county could have taken a number of reasonable steps to better ascertain acceptable levels of risk and to trade immediate costs for greater risk. A number of simple performance measures should have been considered, including total debt and total debt per capita. As noted, Alabama does not limit revenue-backed debt, but the measure is simple to compute from readily available data. The county could have utilized these ratios to benchmark their indebtedness against similar counties. Given Jefferson County’s position at the top of most lists comparing debt or the number and amount of swap agreements, we suspect this would have given commissioners a hint that their actions were beyond ordinary. Debt ratios can be estimated accurately before borrowing.

An additional step that the county could have taken is to perform sensitivity analysis at each decision stage; a “what if?” analysis could have been very useful. Though swaps are largely unregulated at present, the County Commission could have calculated the estimated effects of their proposed decisions under increasing interest rates, decreasing interest rates, changing bond ratings, or investor interest on important outcomes. As we intimated earlier, we believe the significant focus on short-term sewer rates anchored the commission to solutions that addressed that problem without recognizing the intrinsic risks that the swaps posed (Bazerman 2006).

Of course, each of these suggestions requires substantially improved management capacity. The addition of a county manager would enhance accountability and improve local management capacity. The current county system has no manager, and each of its five commissioners presides over different departmental areas of county government. State legislators have argued that adding a county manager might improve professionalism and decision making, echoing the historical arguments from the reform movement for greater administrative expertise in local government. In 2009, state legislators passed a bill that would authorize the commission to hire a county manager, although the bill does not make it mandatory for them to do so (White 2009). While we do not view this as a panacea, it likely would integrate decision making in a way that would prevent similar future problems.

An additional improvement requires enhancing the methods used by private sector ratings agencies. Until the subprime crisis spread in earnest, Jefferson County still enjoyed a very high bond rating. The Jefferson County crisis serves as a strong argument for future ratings schemes and disclosures to adequately take into account the effects of an exogenous economic shock when rating the financial stability of local bond issues.

Finally, clearer goals and objectives should be specified. In this case, the mandate of the consent decree was blended and intertwined with the largesse of the Environmental Services Department, making it difficult to distinguish what projects addressed which goals. The BE&K report was a step in the right direction, as it at least attempted to delineate which work was necessary under the consent decree. In fact, the newly seated County Commission did move to more tightly control project costs in an effort to be more responsible, but despite this, the sewer debt grew more than $800 million from 2003 to 2004, even after those measures were in place.

Conclusion

As a study in decision making, it is clear that no single decision was completely responsible for the debt crisis. Rather, several incremental decisions share responsibility, and context played an important role in shaping the result.
the community’s ability to pay. Maintenance was overshadowed by a desire to expand. Along the way, corruption and mismanagement affected the quality and cost of the work. Decisions to enter swap arrangements increased the county’s risk and broadened the sewer warrants’ impact beyond the enterprise to the county as a whole, even to the state of Alabama. Decisions made in an environment of uncertainty are often bad decisions. Probable and possible risks associated with each incremental bond issue were not considered or were underestimated; the county budget reports debt was needed for consent decree projects each year. If the long-term risks were considered, they were weighted less heavily than short-term sewer rates.

Of course, decisions are only relevant in their context, and changes in the larger national economic outlook provided the mechanism that moved the risk from potentiality to reality. The subprime mortgage crisis caused uncertainty in the national bond insurance industry because of their decision to diversify into collateralized instruments. In this regard, the Jefferson County crisis is, at least in part, a casualty of the larger global financial crisis. Yet even without the precise foreknowledge of the macroeconomic events that precipitated Jefferson County’s local crisis, the commission should have had a more sober assessment of the attendant exposure to exogenous shocks created by its financial decisions.

It sometimes takes external forces to reveal the accountability failures that exist beneath the surface. As the global crisis deepens, failures such as those demonstrated in Jefferson County may become commonplace as greater pressure reveals the failures in municipal governments nationally. The state and federal regulatory systems and local accountability structures in place will vary the amount of stress each system can bear before crisis reveals its shortcomings. This case reveals areas in which greater accountability enforcement should be directed at the local, state, and national level to prevent future crisis. It is our hope that the Jefferson County experience will serve as a cautionary tale to prevent similar financial ruin in other municipal contexts.

Notes
1. Bond ratings consist of a combination of letters, numbers, and, in some cases, plus and minus signs. The key to interpreting ratings is to remember that A is better than B, C, or D; 1 is better than 2 and 3; and plus is always better than no symbol or minus. The tricky element is to recall that more of the same letter is better. So, for example, AAA is preferable to AA+ or Baa1. Likewise, Baa1 is preferable to Ba1, Ba2, or Caa. It is tricky to make direct comparisons across the three major rating agencies because Moody’s rating schedule does not utilize the same scale as the others. (For an excellent comparison, see Vogt 2004, 222.) As the bond rating falls, there is a greater risk of nonpayment or default, and the interest rates increase.
2. A consent decree is a legal agreement between parties to a lawsuit in which the defendant agrees to cease the offending activity in exchange for the charges being brought to an end short of a judicial verdict.
3. An important organizational sidebar is the organization of county government in Jefferson County. Jefferson County operates under a commission form of government, with five commissioners who share responsibility for legislative and executive functions. The commission appoints directors of each unit, including the Environmental Services Division, and provides oversight through a committee of three commissioners with a designated chair. There is no executive, such as a city manager or county mayor, to provide executive oversight or coordination across departments. All power resides with the commission.

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