

**University of CA, Davis
Department of Economics**

Answer Key for Home Assignment 2 [LTCM case study]

Please, make your answers as short as you can: you save time on writing, and the course TA – on grading. Also, when you have to be short, you have to think very clearly. It would help you to get correct answers when the questions are complex.

Question 1 Please, read the article:

“Winding up LTCM's positions threatens market's morals,” South China Morning Post, Hong Kong, Oct 18, 1998.

It could be downloaded from URL:

<http://www.econ.ucdavis.edu/faculty/gala/ECN160B/SouthCh98.txt>

Answer the following questions:

1.1 What do you think about the author's perspective: is it correct or incorrect

Answer: Agency problem in liquidation of LTCM portfolio was substantial; see lecture notes and LTCM handout for the relevant analysis. From our estimation, the lower bound of the difference in LTCM liquidation value under “Buffett” and under “consortium” at \$65 million (given that required cash injections are equal).

To be precise, let us notice that our aforementioned analysis requires the following assumptions:

1. For “Buffett” expected return on investment is at least as high as for “consortium”.
2. LTCM partners’ valuation of their portfolio is the most precise estimate of portfolio liquidation value.
3. LTCM partners actions / choices correctly signal their valuation.
4. Both scenarios, “Buffett” and “consortium”, require equal amounts of cash injection. [Actually, one would think that with consortium the required cash injection could be higher than with Buffett]
5. We ignore (A) negative market reaction & the resulted stock losses for consortium members, and (B) the “perks” that Fed could have awarded (and likely did awarded) to consortium members. Assumption 5 implies that these possible Fed’s perks (see answer to question 6.3 below) were sufficiently high to cancel out the negative effects from participating in the bailout for the consortium members’ stock values.

1.2 Whether the issues that are raised in the article are serious (i.e. they have the potential of causing a damaging effect on financial system)

Answer: Lewis’s examples are serious. Such strategies can be potentially used by the traders of the companies participated in the bailout. Typically, such actions are illegal and called insider trading. But the line between “negligence” and crime is blurred, and scope for misuse of confidential information in the case of LTCM liquidation was substantial.

Given the size of LTCM portfolio, and its resulting capabilities to move markets, the potential for market panic was present. This could explain why Mr. Lewis was unable to publish his article in one of major newspapers, which report financial markets news.

1.3 Comment why the author has chosen this specific newspaper.

Comment: You should have researched where Michael Lewis usually submits his writings (for example, use Lexus-Nexus) You should have checked whether he is a regular author of South China Morning Post. You should reason why he published his work in South China Morning Post rather than in WSJ or NYT, or Financial Times.

Answer: Michael Lewis is well established financial commentator. He publishes his work in NYT, WSJ, Guardian (UK), etc. He is not a regular author of South China Morning Post. Apparently, at that point, major financial papers rejected his analysis. A possible reason for rejection is that his analysis indeed could have helped traders to use their information about LTCM positions self-servingly, negatively affect LTCM liquidation value, and cause market panics (due to its size LTCM portfolio posed a potential threat due to its capability to affect market prices by affecting market expectations about these prices).

Several months later, the treat of market panics related to LTCM liquidation apparently diminished. In January 1999, M. Lewis has published a similar, and more extensive and detailed analysis in NYT magazine.

Question 2. Compare the conditions that Buffet and Fed provided for LTCM. Comment on LTCM partners' valuation of their fund. [From knowing that LTCM partners strictly preferred bailout, estimate their lowest expected LTCM liquidation value. In answering this question, assume that in both scenarios the liquidation values are equal.]

See <http://www.econ.ucdavis.edu/faculty/gala/ECN160B/BufferOffer.pdf>

<http://www.econ.ucdavis.edu/faculty/gala/ECN160B/bailout98.pdf>

Answer:

The two offers that were proposed to liquidate LTCM were by Buffet (3 firms) and the 14 firm consortium brought together by the FED.

I. Buffett's offer

The conditions of **Buffett's** offer (actually, an offer from 3 institutions) were:

Buffet's Offer:

Buffet gets the rights to 95% of the liquidation value

\$250 million payment to LTCM partners

[LTCM partners end up owning 5% of the fund's liquidation value and \$250 million]

Up to \$3.75 billion injection promise

Source: Financial Times Information, L'Agefi Suisse, October 19, 1998, "IS THERE THE PERSPECTIVE OF A HAZARDOUS MORAL SITUATION? (HASARD MORAL EN PERSPECTIVE?)"

"Berkshire Hattaway (belonging to Warren Buffet), American International Group and Goldman Sachs had made a \$ 250 million offer to take-over LTCM, plus a commitment to inject \$ 3.75 billion of capital. However, the offer was rejected."

FED's offer:

II. Consortium: member preferences and conditions of the offer to LTCM

The conditions of **the consortium** of 14 financial institutions (KO, p. 654) were:

Consortium gets the rights to 90% of the liquidation value
[LTCM partners end up owning 10% of the fund's liquidation value]
Up to \$3.6 billion injection promise

Members of consortium openly expressed their dissatisfaction by the bailout:

"During last week's congressional hearing on hedge funds, some congressmen questioned why the Buffett bid -- formally submitted by Mr. Buffett's Berkshire Hathaway Inc. -- wasn't accepted, and yesterday Travelers Group Chairman Sanford I. Weill said he would have preferred if the Buffett bid had prevailed. Travelers was one of the 14 firms involved in the bailout."

III. LTCM partners preferences

The partners strictly preferred the conditions of consortium (they actually rejected the Buffett's offer).

From I, II and III we have:

We know that expected profit of LTCM partners is higher in the case of consortium than in the case of Buffett's offer.

Since the starved for cash LTCM fund was getting more favorable conditions on its short-term cash needs from Buffett (\$3.75 billion > \$3.6 billion), but still preferred Fed's bailout we infer that in LTCM partners' expectations:

\$0.25 billion + 5% of LTCM liquidation value < 10% of LTCM liquidation value

\$0.25 billion < 5% of LTCM liquidation value

\$5 billion < LTCM liquidation value

We infer that LTCM partners estimate of their fund liquidation value was at least **\$5 billion, i.e.**, the lower bound of expected LTCM liquidation value is \$5 billion.

Question 3. Please, read the article "*Long-Term Capital Chief Acknowledges Flawed Tactics*," Wall Street Journal, August 21, 2000, from URL

<http://www.econ.ucdavis.edu/faculty/gala/ECN160B/Meriwether2000.txt>

Also, you might be interested to read the article "*Manager of Hedge Fund Fiasco Seeks to Repair His Reputation*," Wall Street Journal, August 22, 2000, from URL

<http://www.econ.ucdavis.edu/faculty/gala/ECN160B/aboutMeri2000.txt>

3.1 Comment on the reasons for the Meriwether's "change of mind".

From aforementioned article, we learned that:

Conservative, of course, is in the eye of the beholder. The fund's managers say they will use less leverage, borrowing about \$10 for every \$1 invested, as opposed to the nearly \$30 to \$1 leverage that Long-Term Capital sometimes reached. The new fund also aims for returns of 15 percent a year, half the 30 percent a year sought by Long-Term Capital.

The firm says it has raised \$350 million to \$400 million since its inception last December, well short of the \$1 billion the partners would like. Institutional investors, some of them burned by Long-Term Capital, have largely stayed away.

And that:

JWM, like Long-Term Capital, charges a 2 percent annual fee and a performance fee of 20 percent of profits.

Meriwether's "new perspective" is profit driven.

Consider two scenarios:

Scenario A Old vision (as LTCM). Target returns 30%, capital \$350- \$400mln

Scenario B New vision (conservative). Target returns 15%, target capital \$1bln.

Then, max JWM profit from scenario A

Max Profit (A) = $400 \times 0.02 + 400 \times 0.2 \times 0.3 = \32 million

And, min JWM profit from scenario B

Min Profit (B) = $1000 \times 0.02 + 0.2 \times 0.1 \times 1000 = \40 million

We infer that even with the lowest returns of 10% (well below his target if 15%) scenario B (i.e., conservative fund with "low" leverage level of 10:1) gives JWM higher profit. Thus, Meriwether prefers to be conservative: simply because this permits to attract more capital, and thus, makes his new fund more profitable. Lastly, one can easily check if Meriwether expectations about attracting \$1bln in capital materialized. Yes, he was able to get the funds that he wanted.

3.2 What do you think Meriwether real beliefs were at that point?

Answer: Who knows? But from numerous comments, and from his attempt to generate funds for his new hedge fund, which aimed to replicate LTCM strategy, he might have still believed that original leverage level of LTCM was reasonable. But this view was not shared by the investors. This alone is a reason for changing his mind – Meriwether maximizes profits. Thus, when more conservative strategy turned to be more profitable one, he should adopt that strategy. And actually, he did that – as we can confirm from information that is available now about the funds that JWM attracted as a result.

3.3 Do you believe that Meriwether really changed his mind? Why or why not?

Answer: See my answer to question 2.2. But really, Meriwether did change his mind or (equivalently) his strategy. He decided to run less leveraged (i.e., more conservative) hedge fund. As any financial professional John Meriwether knows what of profit maximization. He is clearly maximizes his profits / returns. Calculation in question 2.1 provides that running a more conservative hedge fund is more profitable. More conservative strategy permitted John Meriwether to attract substantially higher investment volume, which increased his expected earnings.

Question 4.

4.1 Do you think that Federal Reserve orchestrated bailout of LTCM was due a, b, c (see below) or their combination? Write to 1 - 2 sentences to support or argue against each idem a. – c.

a. too big to fail

Answer: Yes, it was too big to fail: the overall effect on the world financial markets, and, thus, functioning of US financial sector could have been substantial.

b. too many important people to bear the losses

Answer: May be, this was a factor as well. On one hand, the existence of the Buffett's offer at the time of the bailout was making the bailout unnecessary. There was no imminent threat of LTCM bankruptcy. On the other hand, from a mere glance on the terms of Buffett's offer and comparison of these terms with consortium offer we see how parallel / similar these offers were. Clearly, Buffett was fully aware of the conditions of the consortium offer (notice, that one of 3 members-participants of the Buffett offer was also a consortium member: Goldman, Sachs & Co.). One can imagine that in the absence of alternative offer orchestrated by the Fed, the conditions of the Buffett's offer would have been even less favorable for the LTCM partners.

c. care about avoiding of the financial crises

Answer: Yes, c. is related to a., i.e., LTCM was so big, that its failure could have triggered financial crisis.

4.2 Do you think that the considerations a. or b. were essential in how the bailout was orchestrated?

Answer: Both were important, see comments to 4.1 above.

4.3 If Central Bank would have been able to see into the future: would you think they would have repeated their bailout?

Answer: Yes, highly likely. The overall effect of the bailout was healthy for financial system & economy. The following questions must have been addressed by the Fed:

1. System stability:

1A. Short run: clearly, bailout has a positive effect

1B. Long run: We do not know, but apparently, there were no negative effects (besides the drop of the stock values of bailout participants), also see below 4. (on incentives).

2. Efficiency: Likely, under Buffett LTCM liquidation value would have been higher. In this sense, consortium is less efficient.

3. Competitiveness: But Buffett should have been using his exclusive (i.e., monopolistic) position to make his bid unfavorable for LTCM partners. His offer was monopolistic, because he was not facing competition from other interested institutions. As it turned later, the actual (i.e., realized) return on capital of consortium participants was very high (we estimated that this return exceeded 350%, because the required cash was actually less than \$1bn).

4. Incentives: See notes above, on efficiency & competition. Hedge funds have not inferred that Fed would bail them out if they are in trouble, i.e. Fed actions have not

triggered increased risk taking (Currently prevailing leverage levels are LOWER than LTCM has (30:1), and now (10:1) is standard. This reflects

You might find it useful to read the article “*Long-Term Capital's Partners Got Big Loans to Invest in Fund*,” Wall Street Journal, October 6, 1998, from URL:

<http://www.econ.ucdavis.edu/faculty/gala/ECN160B/bailout98.txt>

Question 5

Present a short list of errors that you have noticed in the Nova documentary *Trillion Dollar Bet* (2000).

Answer:

1. Roger Lowenstein comment: “The assets stayed the same, but the capital have gotten much lower,” is imprecise. He meant not the assets, but the positions / portfolio.

2. Fisher (Fed) comment about the business of staying in the field and being able to stand against the lightening. He asks and what if your business is to be able to stand against the lightening?

But it is NOT really LTCM business: their business is to generate high returns, and to do that reliably, i.e., to account for the fact that markets are volatile. Accounting for double lightening (i.e., for Asian crisis and Russian default) seems to be a minor fault. Such an unhappy contingency is really difficult to predict/ envision. This explains the decision of the Fed to orchestrate the LTCM bailout.

3 Zvi Bodie comment. Their theories included such impossible to measure things as “expectations”. As we know, market expectations are easily measurable. For example, expectations of interest rates translate into prices of long-term bonds, expectations about exchange rates are reflected by exchange rates futures, etc.

4 Leo Melamed is skeptical of mathematical models to account for human sentiment. But ANY model ignores some details, because it is impossible to account for everything. Mathematical models try to account for human behavior. For example, we know that expectations of market participants are reflected by prices (see comment on Zvi Bodie).

Question 6 Use the papers:

Scholes, Myron, 2000, “Crisis and Risk Management”, *The American Economic Review*, Vol. 90, No. 2, pp. 17-21. [The near crash 1998]

and

Kho, Bong-Chan, Lee, Dong and Stulz, Rene, 2000, *The American Economic Review*, Vol. 90, No. 2, pp. 28-37. [The near crash 1998]

The papers can be downloaded in the library from JSTOR: <http://www.jstor.org/>

Stable URLs suppose to get you directly to the papers (but only from the computers on Campus network)

Scholes:

<http://links.jstor.org/sici?sici=0002-8282%28200005%2990%3A2%3C17%3ACARM%3E2.0.CO%3B2-B>

Kho, Lee, Dong and Stulz:

<http://links.jstor.org/sici?sici=0002-8282%28200005%2990%3A2%3C28%3AUBCABF%3E2.0.CO%3B2-I>

6.1 Was Prof. Scholes paper biased (in a sense of the favorable presentation of the LTCM fund strategy / actions)?

Answer: Prof. Scholes paper presents analysis that is purely technical, i.e., he ignores market reactions (such as fall of shock of the consortium participants, which is addressed in Kho et. al.).

Prof. Scholes practically ignores agency considerations and considerations related with the size of portfolio (i.e., difficulties related to LTCM ability to move markets in unfavorable for their portfolio direction).

On the other hand, his risk related analysis helps to understand why liquidity issues come to be paramount for LTCM at the time of the crisis.

6.2 How (if it was) his analysis was influenced by the fact that he was an 'insider'?

Answer: See comment for question 6.1

6.3 What relevant issues are overlooked in the second paper? [Hint: Compare with analysis from Michael Lewis article "*Winding up LTCM's positions threatens market's morals*," South China Morning Post, Hong Kong, Oct 18, 1998. Also, think whether FED had the incentives to keep the banks participating in the bailout 'happy'.]

Answer: On October 3, 1998, Fed adjusted interest rates for federal funds by unprecedented 3/4% (lowered). This was a dramatic step unique in its size (historically). The rumors at that time were that Fed's action was solicited by consortium members and agreed upon with bailout participants as Fed's action favorable for them (i.e., this reduction of federal funds rate aimed to assure the strength of consortium member balance sheets). There is no analysis presented in the paper for October 3. Moreover, even if consortium participants profits from this decrease in the federal funds rate was disproportional relative to others (i.e., uninvolved financial institutions), these profits of consortium participants could have been translated into revaluation of their stock prices indirectly, on the later dates, i.e., at the time of release of their quarterly earning.

Also, there could be gains that the banks who participated in the bailout received from their information about LTCM portfolio / open positions. While agency issues were negative for the LTCM liquidation value, the consortium members might have had gained due to their information about LTCM positions, exactly as Lewis article described.