COMMONWEALTH OF KENTUCKY
BEFORE THE PUBLIC SERVICE COMMISSION

In the Matter of:	)	
	)	PUBLIC
Windstream Kentucky East, LLC for	)	REDACTED COPY
Arbitration of an Interconnection	)	
Agreement with New Cingular Wireless	)	
PCS, LLC, D/B/A AT&T Mobility	)	Case No. 2009-00246
	)	
	)	
	)	

WINDSTREAM KENTUCKY EAST, LLC'S RESPONSES TO AT&T MOBILITY'S SUPPLEMENTAL DATA REQUESTS TO WINDSTREAM KENTUCKY EAST, LLC

Windstream Kentucky East, LLC ("Windstream East") submits as follows in response to AT&T Mobility's ("AT&T Mobility") Supplemental Data Requests to Windstream East.

GENERAL OBJECTIONS TO DEFINITIONS OR INSTRUCTIONS

Windstream East objects to any of AT&T Mobility's definitions or instructions to the extent they purport to require production by Windstream East of knowledge and/or information protected by the attorney-client privilege, the work product doctrine or other applicable privilege or immunity, including privileged information possessed by its attorneys. Further, Windstream East objects to any attempt by AT&T Mobility to request information pertaining to entities not subject to the arbitration or this Commission's jurisdiction.

Windstream East also objects to any data request propounded by AT&T Mobility to the extent that it is not reasonably calculated to lead to the discovery of admissible evidence and/or seeks information or documents that are vague, overly burdensome, or not relevant to the claims asserted by AT&T Mobility in this matter.

Windstream East further objects to providing information that was previously provided to AT&T Mobility, that would require Windstream East to construct information not maintained in the regular course of business, or that otherwise is publicly available to AT&T Mobility.

Lastly, Windstream East objects to the extent that the number of data requests exceeds the limit allowed by Kentucky Rules of Civil Procedure CR 33.01.

SPECIFIC RESPONSES AND OBJECTIONS TO DATA REQUESTS

105. Given the significant changes in Windstream's claimed minutes of use ("MOU's"), why did the "composite weight factors" (see Tab "Composite Costs") remain the same?

    a. Provide all formulae and work papers supporting the "composite weight factors."

RESPONSE: Windstream East objects to this data request on the basis that it is not reasonably calculated to lead to the discovery of admissible evidence and/or seeks information that is not relevant to the claims asserted by AT&T Mobility in this matter.

WINDSTREAM PARTY SUPPORTING RESPONSE: Kerry Smith

106. Explain with particularity each factor that caused the drop (from the original cost study to the modified cost study) in EO Switching Material Costs on Excel Row 9 of Tab "EO Switching".

a. Provide all documentation and work papers supporting the change.
b. Why isn't this highlighted as a change in the modified cost study.

RESPONSE: Please see file labeled "Mapping Document for Updated Model1.xls" item # 1 for the explanation of the reduction in forward-looking end office switching investment. This document was originally provided to AT&T Mobility on 4/16/10.

a. Please see column labeled "Source Documentation" in the "Mapping Document for Updated Model1.xls" for a list of supporting work papers. These files were originally provided to AT&T Mobility on 4/14/10 and 4/16/10.
b. Cell D9 of the EO Switching tab is not marked as a change because the formula referencing back to the Tab labeled "Input" did not change.

WINDSTREAM PARTY SUPPORTING RESPONSE: David Blessing

107. Identify with specificity what elements of switching investment and/or costs the study considers to be non-traffic-sensitive and provide the rationale supporting this claim.

RESPONSE: Please see Windstream East Responses to DR #'s 19, 84 and 99.

WINDSTREAM PARTY SUPPORTING RESPONSE: David Blessing

108. See Tab "EO Switching," Excel Row 12. In the revised cost study, the "Other Material %" changes from ___% in the original cost study to __%. Explain with particularity each factor that caused the drop. (Confidential Information Redacted)

RESPONSE: The "other materials factor" percentage used in the Windstream East TELRIC revised cost study was reduce to __% for switching related investment to reflect the updated percentages used by Windstream East in its actual network design costing efforts. (Confidential Information Redacted)

WINDSTREAM PARTY SUPPORTING RESPONSE: David Blessing

109. Tab "EO Switching," Excel Row 27 shows a change in the "Capital Charge Factor" form _____% in the original cost study to _____%. Explain with particularity each factor that caused the drop. (Confidential Information Redacted)

RESPONSE: Please see file labeled "Mapping Document for Updated Model1.xls" items #34 and #35 for a listing of previously provided support files and the explanation of the inputs changes that resulted in "EO Switching" Excel row 27 changing from ____% to ____%. This document was originally provided to AT&T Mobility on 4/16/10. (Confidential Information Redacted)

WINDSTREAM PARTY SUPPORTING RESPONSE: David Blessing

110. Tab "EO Switching," Excel Row 29 shows a change in the "Direct Expense Factor" form ____% in the original cost study to ____%. Explain with particularity each factor that caused the drop. (Confidential Information Redacted)

RESPONSE: The change resulted from the updated debt cost and debt ratio. Please see tab "Cost Factors" Excel lines 19 -24. Please also see file labeled "Mapping Document for Updated Model1.xls" items #34 and #35 for a listing of previously provided support files and the explanation of the cost of capital inputs changes. This document was originally provided to AT&T Mobility on 4/16/10.

WINDSTREAM PARTY SUPPORTING RESPONSE: David Blessing

111. TAB "EO Switching," Excel Row 38 shows a change in "Total Minutes" from _____ in the original cost study to _____. (Confidential Information Redacted)

a. With reference to Tab "Demand, " explain how the figure of _____ was derived. (Confidential Information Redacted)
b. Explain the rationale for the change from the original to the modified cost study.
c. Provide all documents and work papers supporting the change.
d. Explain why the "Total Minutes" for the end office switching are not the same as for IX Facility and IX Termination.
    i. Identify the location(s) in the cost study or underlying documentation supporting this difference.

RESPONSE:

a. The figure _____ was derived by taking actual minutes from the "Demand" Tab and multiplying them by the growth factor in the "Demand" Tab (cells D33 through D48) and then dividing by 12 (months). Minutes used are under the Forecast Units on the "Demand" tab (Cells D16, D17, and Cells D20-27). (Confidential Information Redacted)
b. Simply to provide a study with current inputs. The modified study uses minutes from the first half of 2009 that were annualized. The original study used minutes from the second half 2008. The modified model also includes updated factors associated with the updated minutes used in the modified model.
c. Already provided to AT&T Mobility (see Kentucky - Verizon Summary of Usage for Recip Comp 04-05-10.xls).
d. IX Facility and IX Termination are designed to calculate cost for traffic that is switched between offices, so the only minutes included were interexchange minutes.
    i. Minutes used are under the Forecast Units on the "Demand" tab (Cells D20-27).

WINDSTREAM PARTY SUPPORTING THE RESPONSE: Kerry Smith

112. Explain with particularity each factor that caused the drop (from the original cost study to the modified cost study) in Tandem Switching Material Costs on excel Row 9 of Tab "Tandem Switching."

a. Provide all documentation and work papers supporting the change.
b. Why isn't this highlighted as a change in the modified cost study?

RESPONSE: Please see file labeled "Mapping Document for Updated Model1.xls" item #3 for the explanation of the reduction in forward-looking tandem switching investment. This document was originally provided to AT&T Mobility on 4/16/10.

a. Please see column labeled "Source Documentation" in the "Mapping Document for Updated Model1.xls" for a list of supporting work papers also attached as Exhibit A. These files were originally provided to AT&T Mobility on 4/14/10 and 4/16/10.
b. Cell D9 of the Tandem Switching tab is not marked as a change because the formula referencing back to the Tab labeled "Input" did not change.

WINDSTREAM PARTY SUPPORTING RESPONSE: David Blessing

113. Explain why the non-traffic sensitive ("NTS") percentage for tandem switching is ____ but the NTS percentage for end office switching is ____%. (Confidential Information Redacted)

a. Provide all documentation and work papers supporting the ____ percent factor. (Confidential Information Redacted)

RESPONSE: Tandem investment is considered ____% traffic sensitive because the investment is entirely related to the switching of traffic. Further, the service at issue in this proceeding provided to AT&T Mobility requires all the investment included in Windstream East's revised cost study. Certain investment amounts typically included within End Office Switching, such as ports and line terminating equipment, are not included in the service provided to AT&T Mobility and are typically recovered from the end-user. (Confidential Information Redacted)

a. There are no workpapers responsive to this request

WINDSTREAM PARTY SUPPORTING RESPONSE: David Blessing

114. Explain why the "Other Material %" in Excel Row 12 is the same for tandem switching as for end office switching.

RESPONSE: The "other materials factor" percentage used in the Windstream East TELRIC revised cost study reflects the updated percentages used by Windstream East in its actual network design costing efforts. Windstream East's network designers do not make a distinction between tandem and end-office switches for this purpose.

WINDSTREAM PARTY SUPPORTING RESPONSE: David Blessing

115. Tab "Tandem Switching," Excel Row 38, shows a change in "Total Minutes" from _____ in the original cost study to _____. (Confidential Information Redacted)

a. With reference to Tab "Demand," explain how the figure of _____ was derived. (Confidential Information Redacted)
b. Explain the rationale for the change from the original to the modified cost study.
c. Provide all documents and work papers supporting the change.

RESPONSE:

a. The figure _____ was derived by taking actual minutes from the "Demand" Tab and multiplying them by the growth factor in the "Demand" Tab (cells D33 through D48) and then dividing by 12 (months). Minutes used are under the Forecast Units on the "Demand" tab (Cells D18 and D19). (Confidential Information Redacted)
b. See answer to DR# 111 (b).
c. See answer to DR# 111 (c).

WINDSTREAM PARTY SUPPORTING RESPONSE: Kerry Smith

116. Explain with particularity each factor that caused the drop (from the original cost study to the modified cost study) in IX Transport Facility Material Costs on Excel Row 9 of Tab "IX Transport Facility."

a. Provide all documentation and work papers supporting the change.
b. Why isn't this highlighted as a change in the modified cost study?

RESPONSE: Please see file labeled "Mapping Document for Updated Model1.xls" item #4 for the explanation of the reduction in forward-looking IX Facility investment. This document was originally provided to AT&T Mobility on 4/16/10.

a. Please see column labeled "Source Documentation" in the "Mapping Document for Updated Model1.xls" for a list of supporting work papers. These files were originally provided to AT&T Mobility on 4/16/10.
b. Cell D9 of the IX Facility tab is not marked as a change because the formula referencing back to the Tab labeled "Input" did not change.

WINDSTREAM PARTY SUPPORTING RESPONSE: David Blessing

117. With regard to the change of NTS percentage on Excel Row 10 of Tab "IX Facility" from ___% in the original cost study to _____%, identify all elements of "IX Transport Facility" that the cost study considers to be traffic sensitive. (Confidential Information Redacted)

a. Explain the rationale for this claim.

RESPONSE: Please see file labeled "Mapping Document for Updated Model1.xls" item #23 for the explanation of the change in the NTS factor for IX Facility. This document was originally provided to AT&T Mobility on 4/16/10. IX Transport Facility will be ___% traffic sensitive when it carries common traffic and __% traffic sensitive when it carries dedicated traffic. (Confidential Information Redacted)

a. The NTS factor is designed to distinguish between transport traffic that is common (billed per mou) and that which is dedicated (billed on a monthly recurring basis).

WINDSTREAM PARTY SUPPORTING RESPONSE: David Blessing

118. Explain why the "Other Material %" in Excel Row 12 is the same for IX transport facility as for tandem switching and end office switching.

RESPONSE: The "other materials factor" percentage used in the Windstream East TELRIC revised cost study reflects the updated percentages used by Windstream East in its actual network design costing efforts.

WINDSTREAM PARTY SUPPORTING RESPONSE: David Blessing

119. Tab "IX Facility," Excel Row 27 shows a change in the "Capital Charge Factor" from _____% in the original cost study to _____% Explain with particularity each factor that caused the drop. (Confidential Information Redacted)

a. Provide all documentation and work papers supporting the change.

RESPONSE: Please see file labeled "Mapping Document for Updated Model1.xls " items #34 and #35 for the explanation of the inputs changes that resulted in "IX Facility" Excel row 27 changing from_____% to _____%. This document was originally provided to AT&T Mobility on 4/16/10. (Confidential Information Redacted)

a, Please see column labeled "Source Documentation" in the "Mapping Document for Updated Model1.xls " for a list of supporting work papers. These files were originally provided to AT&T Mobility on 4/14/10.

WINDSTREAM PARTY SUPPORTING RESPONSE: David Blessing

120. Tab "IX Facility," Excel Row 29 shows no change in the "Direct Expense Factor" from the original to the modified cost study. Explain why the Direct Expenses Factor changed for EO and Tandem Switching but not for IX Transport Facility.

RESPONSE: Tab "IX Facility" Excel row 29 shows no change in the "Direct Expense Factor" from the original cost study while such a change is shown for EO and Tandem Switching because the Windstream East TELRIC revised cost study does not directly assign support assets to outside plant facility investment.

WINDSTREAM PARTY SUPPORTING RESPONSE: David Blessing

121. Tab "IX Facility," Excel Row 38, shows a change in "Total Minutes" from _____ in the original cost study to _____. (Confidential Information Redacted)

a. With reference to Tab "Demand," explain how the figure of 286,993,767 was derived.
b. Explain the rationale for the change from the original to the modified cost study.
c. Provide all documents and work papers supporting the change.

RESPONSE:

a. The figure _____ was derived by taking actual minutes from the "Demand" Tab and multiplying them by the growth factor in the "Demand" Tab (cells D33 through D48) and then dividing by 12 (months). Minutes used are under the Forecast Units on the "Demand" tab (Cells D20-27). (Confidential Information Redacted)
b. See answer to DR# 111 (b).
c. See answer to DR# 111(c).

WINDSTREAM PARTY SUPPORTING RESPONSE: Kerry Smith

122. Does the revised cost study assign any portion of "IX Facility" costs to non-transport uses of the interoffice cable system, such as leased facilities and loop concentrators?

a. If yes, what percentage is assigned, how was this percentage derived and where can it be found on Tab "IX Facility"?
b. If yes, does this constitute a change from the original \cost study?

RESPONSE: Yes.

a. Non-transport uses of inter-office facility and electronics are reflected in Windstream's TELRIC study in two ways. First, the facility investment input into the TELRIC model (found on Tab Input, Cell D11) is based on Windstream's current fiber facilities adjusted to 24 fiber strand cables to reflect the fiber that would be installed for transport purposes only. This adjustment may be found in Column R of the Tab IX Facilities Detail of the file IX Facilities_KY East_2009 Prices-Adj for non-IX fiber.xls previously provided. Second, it is reflected in the NTS Factor found on Excel Row 10 of the TELRIC model's IX Facility, IX Termination, HR Facility and HR Termination tabs. Please see column labeled "Source Documentation", item #23 on the "Mapping Document for Updated Model1.xls " for the explanation of the reduction in forward-looking IX Facility investment and a list of supporting work papers. This document and the supporting workpapers were originally provided to AT&T Mobility on 4/16/10.
b. Yes.

WINDSTREAM PARTY SUPPORTING RESPONSE: David Blessing

123. Does the revised cost study assign any portion of "IX Facility" costs to transport uses of the interoffice cable system that are not involved in the transport and termination of wireless-originated traffic, such as dedicated transport trunks and direct transport trunks?

a. If yes, what percentage is assigned, how was this percentage derived and where can it be found on Tab "IX Facility"?
b. If yes, does this constitute a change from the original cost study?

RESPONSE: See Response to DR #122.
a. See Response to DR# 122 (a).
b. See Response to DR# 122 (b).

WINDSTREAM PARTY SUPPORTING RESPONSE: David Blessing

124. In determining "IX Facility" costs, does the revised cost study determine a total amount of interoffice trunks?

a. If yes, where can that value be found on Tab "IX Facility"?
b. If yes, are all trunks expressed on a DS-0 basis?
c. If yes, does the value include all circuits utilizing Windstream's interoffice transport system?
    i. If yes, identify where all such circuits are listed in the revised study.
d. If yes, does this constitute a change from the original cost study?

RESPONSE: No.
a. Not applicable.
b. Not applicable.
c. Not applicable.
c.i Not applicable
d. Not applicable.

WINDSTREAM PARTY SUPPORTING RESPONSE: David Blessing

125. Explain with particularity each factor that caused the drop (from the original cost study to the modified cost study) in IX Transport Termination Material Costs on Excel Row 9 of Tab "IX Transport Termination."

a. Provide all documentation and work papers supporting the change.
b. Why isn't this highlighted as a change in the modified cost study?

RESPONSE: Please see file labeled "Mapping Document for Updated Model1.xls " item #5 for the explanation of the reduction in forward-looking IX Termination investment. This document was originally provided to AT&T Mobility on 4/16/10.

a. Please see column labeled "Source Documentation" in the "Mapping Document for Updated Model1.xls " for a list of supporting work papers. These files were originally provided to AT&T Mobility on 4/16/10.
b. Cell D9 of the IX Termination tab is not marked as a change because the formula referencing back to the Tab labeled "Input" did not change.

WINDSTREAM PARTY SUPPORTING RESPONSE: David Blessing

126. Regarding the change in NTS percentage on Excel Row 10 of Tab "IX Termination" from ___% in the original cost study to _____%, explain with particularity each element of "IX Termination" that the cost study considers traffic sensitive? (Confidential Information Redacted)

a. Provide the rationale for this claim.

RESPONSE: Please see file labeled "Mapping Document for Updated Model1.xls" item #22 for the explanation of the change in the NTS factor for IX Termination. This document was originally provided to AT&T Mobility on 4/16/10.

a. The NTS factor is designed to distinguish between transport traffic that is common (billed per mou) and that which is dedicated (billed on a monthly recurring basis).

WINDSTREAM PARTY SUPPORTING RESPONSE: David Blessing

127. Explain why the "Other Material %" in Excel Row 12 is the same for IX Transport termination as for tandem switching and end office switching.

RESPONSE: The "other materials factor" percentage used in the Windstream East TELRIC revised cost study reflects the updated percentages used by Windstream East in its actual network design costing efforts.

WINDSTREAM PARTY SUPPORTING RESPONSE: David Blessing

128. Tab "IX Termination," Excel Row 27 shows a decrease in the "Capital Charge Factor" from _____% in the original cost study to _____%. Explain with particularity each factor that caused the increase. (Confidential Information Redacted)

a. Provide all documentation and work papers supporting the change.

RESPONSE: Please see file labeled "Mapping Document for Updated Model1.xls" items #34 and #35 for the explanation of the inputs changes that resulted in "IX Termination" Excel row 27 changing from _____% to _____%. This document was originally provided to AT&T Mobility on 4/16/10. (Confidential Information Redacted)

a. Please see column "Source Documentation" on the "Mapping Document for Updated Model1.xls" for a list of supporting workpapers. These files were originally provided to AT&T Mobility on 4/14/10.

WINDSTREAM PARTY SUPPORTING RESPONSE: David Blessing

129. Does the revised cost study assign any portion of "IX Termination" costs to non-transport uses of the interoffice system, such as leased facilities and loop concentrators?

a. If yes, what percentage is assigned, how was this percentage derived and where can it be found on Tab "IX Termination"?
b. If yes, was this a change from the original cost study?

RESPONSE: Yes. It is reflected in the NTS Factor found on Excel Row 10.
a. Please see file labeled "Mapping Document for Updated Model1.xls" item #23 for the explanation of the reduction in forward-looking IX Facility investment. This document was originally provided to AT&T Mobility on 4/16/10.
b. Yes.

WINDSTREAM PARTY SUPPORTING RESPONSE: David Blessing

130. Does the revised cost study assign any portion of "IX Termination" costs to transport sues of the interoffice system that are not involved in the transport and termination of wireless-originated traffic, such as dedicated transport trunks and direct transport trunks?

a. If yes, what percentage is assigned, how was this percentage derived and where can it be found on Tab "IX Termination"?
b. If yes, was this a change from the original cost study?

RESPONSE: See Response to DR# 129.

a. See Response to DR# 129 (a).
b. See Response to DR# 129 (b).
c.

WINDSTREAM PARTY SUPPORTING RESPONSE: David Blessing

131. In determining "IX Termination" costs, does the revised cost study determine a total amount of interoffice trunks?

a. If yes, where can that value be found on Tab "IX Termination"?
b. If yes, are all trunks expressed on a DS-0 basis?
c. If yes, does the value include all circuits utilizing Windstream's interoffice transport system?
   i. If yes, identify where all such circuits are listed in the revised study.
d. If yes, was this a change from the original cost study?

RESPONSE: No.
a. Not applicable.
b. Not applicable.
c. Not applicable.
c.i Not applicable
d. Not applicable.

WINDSTREAM PARTY SUPPORTING RESPONSE: David Blessing

132. Explain with particularity each factor that caused the drop (from the original cost study to the modified cost study) in HR Facility Material Costs on Excel Row 9 of Tab "HR Facility."

a. Provide all documentation and work papers supporting the change.
b. Why isn't this highlighted as a change in the modified cost study?

RESPONSE: Please see file labeled "Mapping Document for Updated Model1.xls " item #4 for the explanation of the reduction in forward-looking HR Facility investment. This document was originally provided to AT&T Mobility on 4/16/10.

a. Please see column labeled "Source Documentation" on the "Mapping Document for Updated Model1.xls" for a list of supporting work papers. These files were originally provided to AT&T Mobility on 4/16/10.
b. Cell D9 of the HR Facility tab is not marked as a change because the formula referencing back to the Tab labeled "Input" did not change.

WINDSTREAM PARTY SUPPORTING RESPONSE: David Blessing

133. Regarding the change in NTS percentage on Excel Row 10 of Tab "HR Facility" from ___% in the original cost study to _____%, identify with particularity each element of "HR Facility" that the cost study considers traffic sensitive. (Confidential Information Redacted)

a. Provide the rationale for this claim.

RESPONSE: Please see file labeled "Mapping Document for Updated Model1.xls" item #24 for the explanation of the change in the NTS factor for HR Facility. This document was originally provided to AT&T Mobility on 4/16/10.

a. The NTS factor is designed to distinguish between transport traffic that is common (billed per mou) and that which is dedicated (billed on a monthly recurring basis).

WINDSTREAM PARTY SUPPORTING RESPONSE: David Blessing

134. Explain why the "Other Material %" in Excel Row 12 is the same for HR Facility as for tandem switching and end office switching.

RESPONSE: The "other materials factor" percentage used in the Windstream East TELRIC revised cost study reflects the updated percentages used by Windstream East in its actual network design costing efforts. Windstream East's designers use the same factor percentage for all projects of the type modeled in its TELRIC revised cost study.

WINDSTREAM PARTY SUPPORTING RESPONSE: David Blessing

135. Tab "HR Facility," Excel Row 27 shows a decrease in the "Capital Charge Factor" from _____% in the original cost study to _____%. Explain with particularity each factor that caused the decrease. (Confidential Information Redacted)

a. Provide all documentation and work papers supporting the change.

RESPONSE: Please see file labeled "Mapping Document for Updated Model1.xls" items # 34 and #35 for the explanation of the inputs changes that resulted in "HR Facility" Excel row 27 changing from _____% to _____%. This document was originally provided to AT&T Mobility on 4/16/10. (Confidential Information Redacted)

a. Please see column "Source Documentation" on the "Mapping Document for Updated Model1.xls" for a list of supporting workpapers. These files were originally provided to AT&T Mobility on 4/14/10.

WINDSTREAM PARTY SUPPORTING RESPONSE: David Blessing

136. Tab "HR Facility," Excel Row 38, shows a change in "Total Minutes" from _____ in the original cost study to _____. (Confidential Information Redacted)

a. With reference to Tab "Demand," explain how the figure of _____ was derived. (Confidential Information Redacted)
b. Explain the rationale for the change from the original to the modified cost study.
c. Provide all documents and work papers supporting the change.

RESPONSE:

a. The figure _____ was derived by taking actual minutes from the "Demand" Tab and multiplying them by the growth factor in the "Demand" Tab (cells D33 through D48) and then dividing by 12 (months). Minutes used are under the Forecast Units on the "Demand" tab (Cells D27 and D28).
b. See answer to DR# 111 (b). (Confidential Information Redacted)
c. See answer to DR# 111(c).

WINDSTREAM PARTY SUPPORTING RESPONSE: Kerry Smith

137. Explain with particularity each factor that caused the drop (from the original cost study to the modified cost study) in HR Termination Material Costs on Excel Row 9 of Tab "HR Termination."

a. Provide all documentation and work papers supporting the change.
b. Why isn't this highlighted as a change in the modified cost study?

RESPONSE: Please see file labeled "Mapping Document for Updated Model1.xls" item #4 for the explanation of the reduction in forward-looking HR Termination investment. This document was originally provided to AT&T Mobility on 4/16/10.

a. Please see column labeled "Source Documentation" on the "Mapping Document for Updated Model1.xls" for a list of supporting work papers. These files were originally provided to AT&T Mobility on 4/16/10.
b. Cell D9 of the HR Termination tab is not marked as a change because the formula referencing back to the Tab labeled "Input" did not change.

WINDSTREAM PARTY SUPPORTING RESPONSE: David Blessing

138. With regard to the change in NTS percentage on Excel Row 10 of Tab "HR Termination" from ___% in the original cost study to _____%, identify with particularity each element in "HR Termination" that the cost study considers traffic sensitive. (Confidential Information Redacted)

a. Explain the rationale for this claim.

RESPONSE: Please see file labeled "Mapping Document for Updated Model1.xls" item #21 for the explanation of the change in the NTS factor for HR Termination. Please note that Exhibit A, item #21, Column "Cell" should read D105, not D101. This document was originally provided to AT&T Mobility on 4/16/10.

a. The NTS factor is designed to distinguish between transport traffic that is common (billed per mou) and that which is dedicated (billed on a monthly recurring basis).

WINDSTREAM PARTY SUPPORTING RESPONSE: David Blessing

139. Explain why the "Other Material %" in Excel Row 12 is the same for HR Termination as for tandem switching and end office switching.

RESPONSE: The "other materials factor" percentage used in the Windstream East TELRIC revised cost study reflects the updated percentages used by Windstream East in its actual network design costing efforts. Windstream East's designers use the same factor percentage for all projects of the type modeled in its TELRIC revised cost study.

WINDSTREAM PARTY SUPPORTING RESPONSE: David Blessing

140. Tab "HR Termination," Excel Row 27 shows a decrease in the "Capital Charge Factor" from _____% to _____%. Explain with particularity each factor that caused the change. (Confidential Information Redacted)

a. Provide all documentation and work papers supporting the change.

RESPONSE: Please see file labeled "Mapping Document for Updated Model1.xls" items #34 and #35 for the explanation of the inputs changes that resulted in "HR Termination" Excel row 27 changing from _____% to _____%. This document was originally provided to AT&T Mobility on 4/16/10. (Confidential Information Redacted)

a. Please see column labeled "Source Documentation" on the "Mapping Document for Updated Model1.xls" for a list of supporting work papers. These files were originally provided to AT&T Mobility on 4/14/10.

WINDSTREAM PARTY SUPPORTING RESPONSE: David Blessing

141. Regarding the Material Costs in Cells D7 through D9 and Cells D11 through D12, please explain in detail why these values changed from the original cost study.

a. Provide all assumptions, worksheets, programs and calculations that support the derivation of these values.

RESPONSE: Please see file labeled "Mapping Document for Updated Model1.xls " items # 1 through #5 for the explanation of the changes in the values found on Tab Input, cells D7 – D9 and D11 – D12. This document was originally provided to AT&T Mobility on 4/16/10.

a. Please see column labeled "Source Documentation" on the "Mapping Document for Updated Model1.xls" for a list of supporting work papers. These files were originally provided to AT&T Mobility on 4/14/10 and 4/16/10.

WINDSTREAM PARTY SUPPORTING RESPONSE: David Blessing

142. Regarding the Minutes in Cells D18 through D37, please explain in detail why the values changed from the original cost study.

a. Provide all assumptions, worksheets, programs and calculations that support the derivation of the values.

RESPONSE: See answer to DR# 111(b).

a. See answer to DR# 111 (c).

WINDSTREAM PARTY SUPPORTING RESPONSE: Kerry Smith

143. Regarding the Capital Charge Factors in Cells D49 through D54, please explain in detail why these values changed from the original cost study.

a. Provide all assumptions, worksheets, programs and calculations that support the derivation of these values.

RESPONSE: Please see file labeled "Mapping Document for Updated Model1.xls " items #34 and #35 for the inputs changes that resulted in the changes in Tab Input, Cells D49 – D54. This document was originally provided to AT&T Mobility on 4/16/10.

a. Please see column labeled "Source Documentation" on the "Mapping Document for Updated Model1.xls" for a list of supporting work papers. These files were originally provided to AT&T Mobility on 4/14/10.

WINDSTREAM PARTY SUPPORTING RESPONSE: David Blessing

144. Regarding the NTS Percent in Cells D102 through D105, please explain in detail why these values changed from the original cost study.

a. Provide all assumptions, worksheets, programs and calculations that support the derivation of these values.

RESPONSE: Please see file labeled "Mapping Document for Updated Model1.xls " items # 21 through #24 for the explanation of the change in the NTS factor value found on Tab Input, Cells D102 – D105. Please note that the Mapping Document Item #21, Column "Cell" should read D105, not D101. This document was originally provided to AT&T Mobility on 4/16/10.

a. The NTS factor is designed to distinguish between transport traffic that is common (billed per mou) and that which is dedicated (billed on a monthly recurring basis).

WINDSTREAM PARTY SUPPORTING RESPONSE: David Blessing

145. Regarding the Switch NTS Percent in Cell D78, please explain in detail why this value changed from the original cost study.

a. Provide all assumptions, worksheets, programs and calculations that support the derivation of this value.

RESPONSE: Please see file labeled "Mapping Document for Updated Model1.xls " item # 20 for the explanation of the changes in the value found on Tab Input, cells D78. This document was originally provided to AT&T Mobility on 4/16/10.

a. Please see column labeled "Source Documentation" on the "Mapping Document for Updated Model1.xls " for a list of supporting work papers. These files were originally provided to AT&T Mobility on 4/14/10.

WINDSTREAM PARTY SUPPORTING RESPONSE: David Blessing

146. Regarding the Minutes in Cells D9 through D29, please explain in detail why these values changed from the original cost study.

a. Describe the methodology used to calculate the minutes in Cells D9 through D29.
b. Describe how the methodology in the modified study differed from the methodology used in the original study.
c. Provide all assumptions, worksheets, programs and calculations that support the derivation of the values.

RESPONSE: See answer to DR# 111 (b).

a. The methodology used to calculate the minutes in Cells D9 through D29 was done by taking actual minutes from the "Demand" Tab (Cells D50 through D63) and multiplying them by the growth factor in the "Demand" Tab (cells D33 through D48).
b. There was no difference in the methodology between the two cost studies to calculate the minutes in Cells D9 through D29 on the "Demand" Tab. The methodology in both studies uses actual minutes times a growth factor to determine the values in Cells D9 through D29. The only change is the MOU inputs as explained in my response to DR# 111 (b).
c. See answer to DR# 111 (c).

WINDSTREAM PARTY SUPPORTING RESPONSE: Kerry Smith

147. Regarding the Minutes in Cells D43 through D44, please explain in detail why these values changed from the original cost study.

a. Describe the methodology used to calculate the minutes in Cells D43 through D44.
b. Describe how the methodology in the modified study differed from the methodology used in the original study.
c. Provide all assumptions, worksheets, programs and calculations that support the derivation of the values.

RESPONSE: See answer to DR #111 (b).

a. This is a projected growth factor for Recip Comp Usage. The projected growth factor is developed using historical trends in Recip Comp Usage.
b. There was no difference in the methodology between the two cost studies to calculate the factors in Cells D43 and D44 on the "Demand" Tab.
c. See answer to DR# 111 (c).

WINDSTREAM PARTY SUPPORTING RESPONSE: Kerry Smith

148. Regarding the Minutes in Cells D50 through D63, please explain in detail why these values changed from the original cost study.

a. Describe the methodology used to calculate the minutes in Cells D50 through D63.
b. Describe how the methodology in the modified study differed from the methodology used in the original study.
c. Provide all assumptions, worksheets, programs and calculations that support the derivation of the values.

RESPONSE: See answer to DR# 111 (b).

a. Actual usage was used to determine the values in D50 through D63.
b. There is no difference in the methodology from the original cost study to the modified cost study for Cells D50 through D63. Both studies pull minutes from various sources to populate those cells. However, the values for the local minutes changed as explained in responses to DR# 176 through 187.
c. See answer to DR# 111 (c).

WINDSTREAM PARTY SUPPORTING RESPONSE: Kerry Smith

149. Regarding the Switch Support Assets Factor in Cell I30, please explain in detail why this value changed from the original cost study.
    a. Provide all assumptions, workpapers, worksheets and programs that support the derivation of this value.

RESPONSE: The change in the Switch Support Assets factor resulted from the updated debt cost and debt ratio. Please see file labeled "Mapping Document for Updated Model1.xls" items #34 and #35 for the explanation of the cost of capital inputs changes. This document was originally provided to AT&T Mobility on 4/16/10.

a. Please see column labeled "Source Documentation" on the "Mapping Document for Updated Model1.xls" for a list of supporting work papers. These files were originally provided to AT&T Mobility on 4/14/10.

WINDSTREAM PARTY SUPPORTING RESPONSE: David Blessing

150. Regarding the Direct Expense Factors in Cells I33 through I38, please explain in detail why these values changed from the original cost study.
    a. Provide all assumptions, workpapers, worksheets and programs that support the derivation of these values.

RESPONSE: The changes in the Direct Expense Factors resulted from the updated debt cost and debt ratio. Please see tab "Cost Factors" Excel lines 19 -24. Please also see file labeled "Mapping Document for Updated Model1.xls" items # 34 and #35 for the explanation of the cost of capital inputs changes. This document was originally provided to AT&T Mobility on 4/16/10.

a. Please see column labeled "Source Documentation" on the "Mapping Document for Updated Model1.xls" for a list of supporting work papers. These files were originally provided to AT&T Mobility on 4/14/10.

WINDSTREAM PARTY SUPPORTING RESPONSE: David Blessing

151. Regarding the Debt Ratio in Cell I47, please explain in detail the reason why these values changed from the original cost study.
    a. Provide all assumptions, worksheets, programs and calculations that support the derivation of this value.

RESPONSE: Please see file labeled "Mapping Document for Updated Model1.xls" item # 34 for the explanation of the debt ratio input change. This document was originally provided to AT&T Mobility on 4/16/10.

a. Please see column labeled "Source Documentation" on the "Mapping Document for Updated Model1.xls" for a list of supporting work papers. These files were originally provided to AT&T Mobility on 4/14/10.

WINDSTREAM PARTY SUPPORTING RESPONSE: David Blessing

152. Regarding the Interest Rate in Cell I48, please explain in detail the reasons why this value changed from the original cost study.
    a. Provide all assumptions, worksheets, programs and calculations that support the derivation of this value.

RESPONSE: Please see file labeled "Mapping Document for Updated Model1.xls" item # 35 for the explanation of the cost of debt input change. This document was originally provided to AT&T Mobility on 4/16/10.

a. Please see column labeled "Source Documentation" on the "Mapping Document for Updated Model1.xls" for a list of supporting work papers. These files were originally provided to AT&T Mobility on 4/14/10.

WINDSTREAM PARTY SUPPORTING RESPONSE: David Blessing

153. Regarding the cost of Capital in Cell G49, please explain in detail why you believe this factor is the correct factor to use.

a. Provide all company documents and references to publicly available documents upon which you rely to support your claim.

RESPONSE: The federally authorized Weighted Average Cost of Capital (WACC) of 11.25% is appropriate for use in this proceeding because it has been determined to be a "reasonable starting point" for use in TELRIC pricing and, given the difficulty in determining a robust estimate of the cost of equity in times of irregular economic conditions, reflects a less controversial as well as conservative approach. Please see the FCC's First Report and Order in the proceeding establishing TELRIC rules.

a. Please see *Local Competition Order*, 11 FCC Rcd at 15856, para. 702 and attachment "DR #153a_SSRN-id1435131[1].pdf" attached herein as Exhibit A.

WINDSTREAM PARTY SUPPORTING RESPONSE: David Blessing

154. Regarding the Effective Income Tax Gross Up on Total Return in Cell G53, please explain in detail why you believe this factor is the correct factor to use as opposed to using the Composite Income Tax Rate in Cell G57.
    a. Provide all company documents and references to publicly available documents upon which you rely to support your claim.

RESPONSE: The WACC used in a TELRIC price calculation is an "after tax" return. As a result, when applied in the rate development formula the WACC was grossed-up for the taxes paid on the return paid to the equity component of the capital structure. The Composite Income Tax Rate is the sum of the federal and state income tax rates adjusted to reflect the deductibility of state income taxes paid from federal taxable income. It is a tax rate and not a return figure. The Tax Gross-up on Total Return value on Tab Cost Factors, Cell G59 uses the Composite tax rate to gross-up the stated return to allow for the recovery of an after tax return equal to the WACC.

WINDSTREAM PARTY SUPPORTING RESPONSE: David Blessing

155. Regarding the Retail Percents in Cells G61 -G63 and G66, please explain in detail why these values changed from the original cost study.
    a. Provide all assumptions, worksheets, programs and calculations that support the derivation of this value.

RESPONSE: Please see file labeled "Mapping Document for Updated Model1.xls" items # 37 through #40 for the explanation of the retail percentage input changes. This document was originally provided to AT&T Mobility on 4/16/10.

a. Please see column labeled "Source Documentation" on the "Mapping Document for Updated Model1.xls" for a list of supporting work papers.

WINDSTREAM PARTY SUPPORTING RESPONSE: David Blessing

156. Regarding the Other Material %, Install % and Engineering % in Cells D8 through D11, H8 through H11, H14, I8 through I11, and I14, please explain in detail why these values changed from the original cost study.
   a. Provide all assumptions, worksheets, programs and calculations that support the derivation of these values.

RESPONSE:
"Other Material Percentages" : The "other materials factor" percentage used in the Windstream East TELRIC revised cost study reflects the updated percentages used by Windstream East in its actual network design costing efforts. Windstream East's designers use the same factor percentage for all projects of the type modeled in its TELRIC revised cost study.

"Install " Percentages: The "Install %" in Cells I8 through I11 changed as a result of the development of revised Switching costs. The "Install %" in Cell I14 changed as a result of the development of revised IX Facilities costs.

"Engineer" Percentages: The "Engineer %" in Cells H8 through H11 changed as a result of the development of revised Switching costs. The "Engineer %" in Cell H14 was changed to reflect the current percentage used by Windstream East in its actual network design costing efforts.

a. "Other Material Percentages" – Assumption.; "Install" Percentages Cells I8 through I11– see previously submitted worksheet "Switch Replacement_2010 Update_KY219.xls Cell M3 on the "Switch Costs" tab; "Install" Percentage Cell I8 – see previously submitted worksheet "IX Facilities_KYEast_2009 Prices_Adj for non-IX fiber.xls" Cell O110 on the "IX Facilities" tab; "Engineer" Percentages Cells H8 through H11 – see previously submitted worksheet "Switch Replacement_2010 Update_KY219.xls Cell N3 on the "Switch Costs" tab; "Engineer" Percentage Cell H8 – see previously submitted worksheet "IX Facilities_KYEast_2009 Prices_Adj for non-IX fiber.xls" Cell O111 on the "IX Facilities" tab.

WINDSTREAM PARTY SUPPORTING RESPONSE: David Blessing

157. Regarding the Common Costs, please explain in detail why the Forward Looking Common Cost Factor in Cell E63 changed from the original cost study.
    a. Provide all assumptions, worksheets, programs and calculations that suppor the derivation of these values.

RESPONSE: The value at Tab Common Cost, Cell E 63 changed because the retail percentages at cells D8 – D13 were updated and the cost of debt at debt ratio inputs also changed. Please see file labeled "Mapping Document for Updated Model1.xls" items # 34 and #35 for the explanation of the debt ratio input change. Please see file labeled "Mapping Document for Updated Model1.xls" items # 37 through #40 for the explanation of the retail percentage input changes. This document was originally provided to AT&T Mobility on 4/16/10.

a. Please see column labeled "Source Documentation" on the "Mapping Document for Updated Model1.xls" for a list of supporting work papers. These files were originally provided to AT&T Mobility on 4/14/10.

WINDSTREAM PARTY SUPPORTING RESPONSE: David Blessing

158. Regarding the Embedded Kentucky East Plant located in Cells M4 thorugh M30, if there is a company report that is the source of these values, please provide that report.

RESPONSE: See attachment "DR#158_DR#159_Regulatory Account Balances.xls" attached herein as Exhibit B.

WINDSTREAM PARTY SUPPORTING RESPONSE: David Blessing

159. Regarding the Total Windstream Wireline Embedded Plant Distribution in Columns O, P, Q and R, if there is a company report that is the source of these values, please provide that report.

RESPONSE: See Exhibit B attached herein.

WINDSTREAM PARTY SUPPORTING RESPONSE: David Blessing

160. Regarding the ACF values in cells C33 through C45, please explain in detail why these values changed from the original cost study.
    a. Provide all assumptions, worksheet calculations, and programs that support the derivation of these values.

RESPONSE: The changes at Tab Capital ACF, Cells C33 – C45 resulted from the updated debt cost and debt ratio. Please also see file labeled "Mapping Document for Updated Model1.xls" items # 34 and #35 for the explanation of the cost of capital inputs changes. This document was originally provided to AT&T Mobility on 4/16/10.

a. Please see column labeled "Source Documentation" on the "Mapping Document for Updated Model1.xls" for a list of supporting work papers. These files were originally provided to AT&T Mobility on 4/14/10.

WINDSTREAM PARTY SUPPORTING RESPONSE: David Blessing

161. Regarding the capital Cost Inputs in Cells C9 through C11, please explain in detail why these values changed from the original cost study.
    a. Provide all assumptions, worksheets, programs and calculations that support the derivation of these values.

RESPONSE: The changes at Tab Depr_Inputs, Cells C9 – C11 resulted from the updated debt cost and debt ratio. Please also see file labeled "Mapping Document for Updated Model1.xls" items # 34 and #35 for the explanation of the cost of capital inputs changes. This document was originally provided to AT&T Mobility on 4/16/10.

a. Please see column labeled "Source Documentation" on the "Mapping Document for Updated Model1.xls" for a list of supporting work papers. These files were originally provided to AT&T Mobility on 4/14/10.

WINDSTREAM PARTY SUPPORTING RESPONSE: David Blessing

162. How were the updated 2009 material and installation costs developed?
   a. Provide all documentation and work papers supporting the updated material and installation costs.
   b. How did the development of the updated 2009 material and installation costs differ from the development of IX Facilities material and installation costs in the original cost study?

RESPONSE: Updated 2009 material and installation costs were developed in the same manner as the original study except updated cable costs from vendors were used. See DR #162(b) for one exception to this.

a. See previously submitted support documents "DR108b_Superior Essex fiber pricing_May 2009.xls" and "IX Facilities_KYEast_2009 Prices_Adj for non-IX fiber.xls" - tab "IX Facilities Detail." These files were originally provided to AT&T Mobility on 6/2/10 and 4/16/10.

b. In the revised study all IX fiber optic cable from central offices to the exchange boundaries was adjusted to a 24 fiber equivalent in all exchanges. This resulted in a reduction to IX Facilties material and install costs. (See Column Q on the supporting file "IX Facilities_KYEast_2009 Prices_Adj for non-IX fiber.xls" – tab "IX Facilities Detail"). This file was originally provided to AT&T Mobility on 4/16/10.

WINDSTREAM PARTY SUPPORTING RESPONSE: David Blessing

163. Does this updated spreadsheet assume that all interoffice cables contain 24 fibers?
   a. How does this assumption cause the modified cost study to differ from the original cost study?
   b. What is the rationale for this assumption?
   c. Provide all documentation and work papers in support of this assumption.

RESPONSE: Yes.

a. The assumption of 24 fibers for the provision of the transport function reduces investment in fiber facilities and thereby reduces the interconnection rates proposed by Windstream East in this proceeding.

b. The assumption is based on the determination that a 24 strand fiber cable would be appropriate for the provision of only transport functions.

c. No documentation exists for rationale of this assumption. Please see item # 23 of the file "Mapping Document for Updated Model1.4.16.10.XLS provided to AT&T Mobility on 4/16/10 for a listing of previously provided support files and the explanation of the cost of capital inputs changes.

WINDSTREAM PARTY SUPPORTING RESPONSE: David Blessing

164. Explain why the "Engineering" factor has been changed from ___% in cell F111 in the original cost study to ___% in cell I111 in the modified cost study. (Confidential Information Redacted)

a. What rationale supports the ___% factor? (Confidential Information Redacted)

b. Provide all documentation and work papers supporting the __% factor. (Confidential Information Redacted)

RESPONSE: Please see Response to DR# 156.

WINDSTREAM PARTY SUPPORTING RESPONSE: David Blessing

165. Explain the process used to modify the updated material and installation costs for "sharing" (Columns N and O).
   a. What is the rationale for this process?
   b. Provide all documentation and work papers supporting the rationale.

RESPONSE: The process used to modify the update material and installation costs for Columns N and O of the file IX Facilities_KY_East_2009 Prices_Adj for Non IX Fiber.xls, Tab "IX Facilities" consisted of updated the material prices to those of 12/31/2009 and to adjust the size of the fiber cable to 24 strand fiber cable. The data found in these columns is also used to develop the split (or Sharing) of the installation cost between Installation, Engineering and Freight. The resulting percentages for Installation, Engineering and Freight (Cells O110, O111 & O112) are input to the "Material Factors" tab of the study.

a. The rationale for updated material prices to a more recent vintage is that more current material prices are more consistent with forward-looking prices than earlier pricing. Please see the response DR# 163 for the rationale of using 24 strand fiber cable.

b. Please see the response DR# 163 (c).

WINDSTREAM PARTY SUPPORTING RESPONSE: David Blessing

166. In computing switching costs in the modified cost study, are the prices shown on Tab "2009 Prices" applied to Tab "Switch Cost Data" in the modified spreadsheets "Switch Preplacement_2010 Update_KY219.4.13.10.xls" and "Switch Preplacement_2010 Update_KY220.4.13.10.xls"?

RESPONSE: Yes

WINDSTREAM PARTY SUPPORTING RESPONSE: David Blessing

167. Are there any material differences between this tab and the identically named tab in the originally provided spreadsheet "Electronics Input_KYEast_09.xls"?
a. If yes, describe the differences with particularity.

RESPONSE: Yes.

a. The file labeled "Electronic Input_2010_KY East Revised 4.13.10" is updated from the one labeled "Electronic Input_2010_KY East_09". Columns G and H of Tab IX Fiber Equip $ have been revised. Please see file labeled "Mapping Document for Updated Model1.xls" item # 5 for a listing of previously provided support files and the explanation of the change. This document was originally provided to AT&T Mobility on 4/16/10.

WINDSTREAM PARTY SUPPORTING RESPONSE: David Blessing

168. Explain how the ___% factors in cells C219, D219, E219 and F219 were derived. (Confidential Information Redacted)
   a. Explain the rationale supporting the derivation.
   b. Provide all documentation and work papers supporting the ___% factor. (Confidential Information Redacted)

RESPONSE: Please see Issue 11 of the "Response of AT&T Mobility to Windstream Kentucky East's Petition for Arbitration.

WINDSTREAM PARTY SUPPORTING RESPONSE: David Blessing

169. Explain how the _____% factor in cell G219 was derived. (Confidential Information Redacted)
   a. Explain the rationale supporting the derivation.
   b. Provide all documentation and work papers supporting the _____% factor. (Confidential Information Redacted)

RESPONSE: See the formula in cell G219. It is the ratio which reflects the overall change from the reported Total DS3 quantities on tab "IX Fiber Equip $" and the adjusted Total DS3 quantities on tab "IX Fiber_TS Factor."

a. The DS3 reported quantities for Facility DS3 circuits are reduced by 33.11% (the reciprocal of the _____% calculated in cell H219) and the High Cap DS3 circuits are reduced by __%. This adjustment reflects the engineering estimate that the NTS portions of the DS3 circuits are proportional to those of the DS1 circuits. (Confidential Information Redacted)
b. No additional documentation or workpapers responsive to this request exist.. All calculations occur in Column G of the "IX Fiber_TS Factor" tab on this worksheet.

WINDSTREAM PARTY SUPPORTING RESPONSE: David Blessing

170. Explain how the _____% factor in cell H219 was derived. (Confidential Information Redacted)
   a. Explain the rationale supporting the derivation.
   b. Provide all documentation and work papers supporting the _____% factor. (Confidential Information Redacted)

RESPONSE: See formula in cell H219. It is the ratio which reflects the overall change from the reported Total DS1 quantities on tab "IX Fiber Equip $" and the adjusted Total DS1 quantities on tab "IX Fiber_TS Factor."

a. The DS1 reported quantities for DataLink and High Cap DS1 circuits are reduced by __% based on the assumption that half the circuits are NTS. This is done on an exchange by exchange basis within the Column H formulas. (Confidential Information Redacted)

b. No additional documentation or workpapers responsive to this request exist. All calculations occur in Column H of the "IX Fiber_TS Factor" tab on this worksheet.

WINDSTREAM PARTY SUPPORTING RESPONSE: David Blessing

171. Explain why "Electronics Prices" were not updated in the modified cost study.

RESPONSE: At the time of the revision of the TELRIC study updated pricing for the equipment found on the "Electronics Input Model" had not been received.

WINDSTREAM PARTY SUPPORTING RESPONSE: David Blessing

172. Explain how this spreadsheet is incorporated into and affects the modified cost study.

a. In the modified cost study, identify specific tabs and cell numbers where data from this spreadsheet are used.

RESPONSE: The MDF Power worksheet calculates switching, power and MDF investment inputs that are brought over to the Switch Replacement_2010 Update file.

a. i. MDF/Power : Cost Worksheet Tab: Row 5 is brought over to Switch Replacement: Switch Data Tab: Col G.

ii. MDF/Power : Cost Worksheet Tab: Row 32 is brought over to Switch Replacement: Switch Data Tab: Col G.

iii.. MDF/Power : Cost Worksheet Tab: Row 18 is brought over to Switch Replacement: Switch Data Tab: Col R.

iv. MDF/Power : MDF Investment Tab: Row 36 is brought over to Switch Replacement: Switch Data Tab: Col W.

WINDSTREAM PARTY SUPPORTING RESPONSE: David Blessing

173. Referring to the Heading "Host Switch Replacement Models":

a. Why were the categories expanded in column A, as compared to the original spreadsheet?

b. Why does the spreadsheet not model a switch sized to meet the actual or anticipated number of lines servied from a specific wire center?

c. Explain why the factor in cell B13 has been changed from ____% in the original cost study to ___%. (Confidential Information Redacted)

d. Describe what elements listed in Excel row 6 are considered non-traffic-sensitive by Windstream.

   i. Explain how, for each element discussed, the cost of the element varies with the number of calls processed.

   ii. Provide all documentation and work papers supporting the discussionin "d.i." above.

e. Referring to cell AQ6, explain the derivation of the formula used to compute the amount in this cell.

   i. In the formula, explain with specificity the meaning and derivation of the value "_____". (Confidential Information Redacted)

   ii. Explain the rational supporting this value.

   iii. Provide all documentation and work papers supporting this value.

RESPONSE:

a. The categories were expanded in the revised Switch Replacemant model to accommodate additional potential switch sizes for Windstream exchanges.

b. The model does develop switch investment based on actual demand. Please see the formulas on Tab Switch Costs, Column G. where variable cost per line is multiplied by actual demand (Column F).

c. The value in cell B13 represents an anticipated fill factor. However, this value is not used in the model. The fill is incorporated into the model on Tab Switch Costs, Column D.

d. i. The pricing provider by the vendor is based on an assumed call volume per line.

   ii. Please see previously submitted Exhibit DR 91 (CS1500 Capacity)

e. i $_____ is the cost of the CS1500 Starter Kit. (Confidential Information Redacted)

   ii See footnote #2 on files "Switch Replacement_2010 Update_KY219.xls" and "Switch Replacement_2010 Update_KY220.xls", "Switch Cost Data" tab.

   iii See supporting document "2009 CS1500 Update.xls", tab "2009 Prices", cell J6.

WINDSTREAM PARTY SUPPORTING RESPONSE: David Blessing

174. Referring to the heading "Tandem Switch Replacement Model":

a. Does Windstream Kentucky East have any "standalone" tandem switches in its network, *i.e.*, switches that perform only tandem functions and do not also perform end office functions?

i. If yes, identify all such "standalone" tandems.

b. Does the "Tandem Switch Replacement Model" assume that all tandems in the Windstream Kentucky East network will be "Standalone" units that will not also perform end office switching functions?

i. If not, identify with particularity in Tab "Switch Cost Data," or in any other tab in this spreadsheet, or in any other spreadsheet provided by Windstream to AT&T Mobility, where costs are apportioned between tandem and end office switching functions in non-standalone-tandems.

RESPONSE:

a. No.

i. N/A

b. No.

i. The cost of the tandems is developed on the "Switch Costs" tab of the Switch Replacement 2010 Update KY219.xls" file in the same manner as it is developed for non-tandem switches. The additional investment required for Tandem Switch capability is developed on the "Tandem Costs" tab of the file "Switch Replacement 2010 Update KY219.xls"l.

WINDSTREAM PARTY SUPPORTING RESPONSE: David Blessing

175. Referring to the heading "remote Switch Replacement Models":
   a. Are the costs for a remote switch equipped with a specified number of line ports assumed to be the same as the costs for a host switch equipped with the same specified number of lien ports?
   b. If the answer is no, identify with specificity those elements for which costs are assumed to differ.

RESPONSE:

a. No.

b. The values in Tab Switch Cost Data Columns G and H differ between host and remote switches serving the same number of lines. The base price differs, as well as, the cost of LCEs, LCMs, drawers and lines. In addition, the cost of a host also includes Toll grade test head.

WINDSTREAM PARTY SUPPORTING RESPONSE: David Blessing

176. Why does the file name contain "Verizon"?

RESPONSE: "Verizon" was mistakenly included in the title, it should have contained "AT&T" instead.

WINDSTREAM PARTY SUPPORTING RESPONSE: Kerry Smith

177. Regarding the Total PEGS Line to Line Tab, please explain why this Tab is included in the Kentucky-Verizon Summary of Usage for Recip Comp 04-05-10.xls worksheet and is not included in the previous usage support file DR #64 File #4 Revised Study to ATT.xls.

RESPONSE: This tab was included in the Kentucky-Verizon Summary of Usage for Recip Comp 04-05-10.xls to show that Windstream East has developed a method to capture actual messages for line to line messages. This tab was not included in the DR# 64 File #4 Revised Study to ATT.xls study because the study attempted to calculate the line to line messages and was not able to capture actual line to line messages.

WINDSTREAM PARTY SUPPORTING RESPONSE: Kerry Smith

178. Regarding the Total PEGS Line to Line Tab, please describe in detail each column header.

a. Spell out all abbreviations and explain what each column represents and how each column is calculated.

RESPONSE: "State" represents the Windstream state, which in this case is Kentucky. "Office" represents the Windstream East End Office. "Date" represents the date of the usage (for example, 1/1/2009 represents the month of January 2009). "Total PEGS" represents the total number of PEGS recorded at the switch for that time period. "Date Eligible Period" represents the number of hours recording to obtain the PEG counts for that month (for example, 720 hours equals a 30 Day month). "Calculated Hours" is designed to compensate for offices that record in 30 minute increments instead of 1 hour increments (no office in Kentucky recorded in 30 minute increments). "Annual PEG" represents the monthly PEG counts annualized using 8,760 hours to annualize. The column not labeled but containing values represents the annualized average of the Annual PEG column and these numbers are transferred to Tab "PEGS" column E.

WINDSTREAM PARTY SUPPORTING RESPONSE: Kerry Smith

179. Regarding the PEGS Tab, please explain each column header in detail. Spell out each abbreviation and explain what each represents.

a. If the column headers are different from the column headers on the PEGS Tab in the previous usage support worksheet (DR #64 file #4 Revised Study to ATT.xls), provide the rationale for the change(s).

RESPONSE: " Co# - Company Number" represents the internal company number for Windstream East. "Exch Name - Exchange Name" represents the exchange name for each end office in Windstream East's territory. "Orig Rec PEGS - Originated Recorded PEGS" represents all originated calls for all recorded trunks (which would include line to trunk, trunk to line and trunk to trunk calls). "Term Rec PEGS - Terminating Recorded PEGS" represents all terminated messages for all recorded trunks (which would include line to trunk, trunk to line and trunk to trunk messages). "Orig Line to Line PEGS - Originating Line to Line PEGS" represents all originated messages for all line to line messages. "T/O ratio - Terminating to Originating ratio" represents the ratio of Terminating to Originating messages. "Term Line to Line PEGS - Terminating Line to Line PEGS" represents all terminated messages for all line to line messages. "Local Orig Rec PEGS - Local Originated Recorded PEGS" represents a subset of Orig Rec PEGS for all local originated messages for all local recorded trunks (which would include line to trunk, trunk to line and trunk to trunk messages). "Local Term REC PEGS - Local Terminated Recorded PEGS" represents a subset of Term Rec PEGS for all local terminated messages for all local recorded trunks (which would include line to trunk, trunk to line and trunk to trunk messages) "EAS Orig PEGS - Extended Area Service Originated PEGS" represents a subset of Orig Rec PEGS for all EAS originated messages for all EAS recorded trunks (which would include line to trunk, trunk to line and trunk to trunk messages). "EAS Term PEGS - Extended Area Service Terminated PEGS" represents a subset of Term Rec PEGS for all EAS terminated messages for all EAS recorded trunks (which would include line to trunk, trunk to line and trunk to trunk messages). "Orig Local PEGS (Local & EAS) - Originated Local PEGS (Local and Extended Area Service)" represents the total of columns Orig Line to Line + Local Orig Rec PEGS + EAS Orig PEGS. "Term Local PEGS (Local & EAS) - Terminated Local PEGS (Local and Extended Area Service)" represents the total of columns Term Line to Line + Local Term Rec PEGS + EAS Term PEGS.

a. See answer to DR #111 (b).

WINDSTREAM PARTY SUPPORTING RESPONSE: Kerry Smith

180. Regarding the PEGS Tab and the Minutes Tab, please explain any variances in data collection or collection or calculations between the current usage worksheet (Kentucky-Verizon Summary of Usage for Recip Comp 04-05-10.xls) and the former usage worksheet (DR #64 File #4 Revised Study to ATT.xls).

RESPONSE: The only change in data collections is that Windstream East now has the ability to determine actual Line to Line messages. Windstream East did not have that ability when the original study was prepared; the original cost study used a calculation to back into the figure for line to line messages.

WINDSTREAM PARTY SUPPORTING RESPONSE: Kerry Smith

181. Regarding the Minutes Tab, please explain each column header in detail.
   a. Spell out each abbreviation and explain what each represents.
   b. If the column headers are different from the column headers on the MOU Tab in the previous usage support worksheet (DR #64 File #4 Revised Study to ATT.xls), provide the rationale for the change(s).

RESPONSE:

a. "Co# - Company Number" represents the internal company number for Windstream East. "Exch Name - Exchange Name" represents the exchange name for each end office in Windstream East's territory. "Orig Rec MOU - Originated Recorded Minutes of Use" represents all originated usage for all recorded trunks (which would include line to trunk, trunk to line and trunk to trunk usage). "Term Rec MOU - Terminating Recorded Minutes of Use" represents all terminated usage for all recorded trunks (which would include line to trunk, trunk to line and trunk to trunk usage). "Orig Line to Line MOU- Originating Line to Line Minutes of Use" represents all originated usage for all line to line calls. " T/O ratio - Terminating to Originating ratio" represents the ratio of Terminating to Originating usage. "Term Line to Line MOU - Terminating Line to Line Minutes of Use" represents all terminated usage for all line to line usage. "Local Orig Rec MOU - Local Originated Recorded Minutes of Use" represents a subset of Orig Rec MOU for all local originated usage for all local recorded trunks (which would include line to trunk, trunk to line and trunk to trunk usage). "Local Term REC MOU - Local Terminated Recorded Minutes of Use" represents a subset of Term Rec MOU for all local terminated usage for all local recorded trunks (which would include line to trunk, trunk to line and trunk to trunk usage). "EAS Orig MOU - Extended Area Service Originated Minutes of Use" represents a subset of Orig Rec MOU for all EAS originated usage for all EAS recorded trunks (which would include line to trunk, trunk to line and trunk to trunk usage). "EAS Term MOU - Extended Area Service Terminated Minutes of Use" represents a subset of Term Rec MOU for all EAS terminated usage for all EAS recorded trunks (which would include line to trunk, trunk to line and trunk to trunk usage). "Orig Local MOU (Local & EAS) - Originated Local Minutes of Use (Local and Extended Area Service)" represents the total of columns Orig Line to Line + Local Orig Rec PEGS + EAS Orig PEGS. "Term Local MOU (Local & EAS) - Terminated Local Minutes of Use (Local and Extended Area Service)" represents the total of columns Term Line to Line + Local Term Rec PEGS + EAS Term PEGS.

b. See answer to DR# 111(b).

WINDSTREAM PARTY SUPPORTING RESPONSE: Kerry Smith

182. Regarding the Summary Tab, please explain each column header in detail.
   a. Spell out each abbreviation and explain what each represents.
   b. If the column headers are different from the column headers on the Summary Tab in the previous usage support worksheet (DR #64 File #4 Revised Study to ATT.xls), provide the rationale for the change(s).

RESPONSE:

a. "Local Orig Trunk/Cust PEG and MOU (annualized) - Local Originating Trunk /Customer PEG and Minutes of Use" represents the sum total of column totals from Tab "PEGS"Orig Line to Line PEG + Local Orig Rec PEGS for cells C6 and C8 on Tab "Summary" and sum total of column totals from Tab "Minutes" Orig Line to Line MOU + Local Orig Rec MOU for cells C7 and C9 on Tab "Summary". "EAS Orig PEG and MOU (annualized) - Extended Area Service Originating PEG and Minutes of Use" represents the sum of column total EAS Orig PEGS from Tab "PEGS" for cells E6 and E8 on Tab "Summary". "EAS Orig PEG and MOU (annualized) - Extended Area Service Originating PEG and Minutes of Use" represents the sum of column total EAS Orig MOU from Tab "Minutes" for cells E6 and E8 on Tab "Summary". "Total Orig PEG and MOU (annualized) - Total Originating PEG and Minutes of Use" represent the sum of Local Orig Trunk/Cust PEG and MOU (annualized) + EAS Orig PEG and MOU (annualized) on the Tab "Summary". "Total Term PEG and MOU (annualized) - Total Terminating PEG and Minutes of Use" represent the sum of Local Term Trunk/Cust PEG and MOU (annualized) + EAS Term PEG and MOU (annualized) on the Tab "Summary". "Recip Orig MOU Rec (annualized)*factored - Reciprocal Originating Minutes of Use Recorded (annualized)" represents the total originating reciprocal compensation usage for that particular Windstream East Company (Co # 219 and Co# 220). "Recip Term MOU Rec (annualized)*factored - Reciprocal Terminating Minutes of Use Recorded (annualized)" represents the total terminating reciprocal compensation usage for that particular Windstream East Company (Co # 219 and Co# 220). "Inter Orig MOU (annualized) - Interstate Originating Minutes of Use (annualized)" represents the total originating Interstate switched access usage for that particular Windstream East Company (Co # 219 and Co# 220). "Inter Term MOU (annualized) - Interstate Terminating Minutes of Use (annualized)" represents the total terminating Interstate switched access usage for that particular Windstream East Company (Co # 219 and Co# 220). "Intra Orig MOU (annualized) - Intrastate Originating Minutes of Use (annualized)" represents the total originating Intrastate switched access usage for that particular Windstream East Company (Co # 219 and Co# 220). "Intra Term MOU (annualized) - Intrastate Terminating Minutes of Use (annualized)" represents the total terminating Intrastate switched access usage for that particular Windstream East Company (Co # 219 and Co# 220). "Host to Remote Orig MOU Rec (annualized) - Host to Remote Originating Minutes of Use Recorded (annualized)" represents the total Originating Host to Remote access usage for that particular Windstream East Company (Co # 219 and Co# 220). "Host to

Remote Term MOU Rec (annualized) - Host to Remote Terminating Minutes of Use Recorded (annualized)" represents the total Terminating Host to Remote access usage for that particular Windstream East Company (Co # 219 and Co# 220).

b. See answer to DR# 111 (b).

WINDSTREAM PARTY SUPPORTING RESPONSE: Kerry Smith

183. Provide any analysis that was performed by Windstream East to compare and explain the differences between the MOUs in the original study with the MOUs in the revised study.

RESPONSE: No comparisons were performed.

WINDSTREAM PARTY SUPPORTING RESPONSE: Kerry Smith

184. Provide the name, title and business address of the person or persons who developed the Minutes of Use in Windstream's Original Recip Comp Study 2009 filed in Kentucky Case 2009-00246.

RESPONSE:

Kerry Smith
Staff Manager - Wholesale Services
4001 N Rodney Parham Road
Little Rock, Arkansas 72202

WINDSTREAM PARTY SUPPORTING RESPONSE: Kerry Smith

185. Provide the name, title and business address of the person or persons who developed the Minutes of Use in Windstream's Revised Recip Comp Study dated 4-13-10.

RESPONSE: See Answer to DR# 184.

WINDSTREAM PARTY SUPPORTING RESPONSE: Kerry Smith

186. Explain why the column headings in the tab labeled MOU in the Kentucky-Verizon Summary of Usage for Recip Comp 4-5-10 file provided to AT&T do not match the column headings of the prior usage study provided as Exhibit C DR 64 File #4 Revised Study to AT&T, tab labeled Minutes.

RESPONSE: See answer to DR# 111 (b).

WINDSTREAM PARTY SUPPORTING RESPONSE: David Blessing

187. This series of questions explores the differences in methodology between the original MOU estimation (DR #64 File #4 Revised Study to ATT.xls hereafter "Original MOU Spreadsheet") and the MOU estimated for the modified cost study (Verizon Summary of Usage for Recip Comp 04-05-10.xls; hereafter "Modified MOU Spreadsheet").

a. Referring to Tab "MOU" on the original MOU Spreadsheet:

i. Explain what MOUs are captured in Column "Orig Rec MOU."
ii. Are "Total Orig MOUs" calculated by the following formula: Divide "Orig Rec MOUs" by Orig Rec PEGS", then multiply the dividend by Total Orig PEGS"?
iii. If no, give the formula by which "Total Orig MOUs" are calculated.
iv. If yes, explain the rationale for dividing "Orig Rec MOUs" by "Orig Rec PEGS."
v. If yes, explain the rationale for multiplying the dividend by "Total Orig PEGS."
vi. Referring to Column E "T/O Ratio". Does a factor of one mean that the spreadsheets assumes that "Term Non Rec MOU" equals "Orig Non Rec MOU"?
vii. If yes, would a factor of .5 mean that "Term Non Rec MOU" would be assumed to be one-half "Orig Non Rec MOU"?
viii. If yes, would a factor of zero mean that "Term Non Rec MOU" would be assumed to be zero?
ix. Explain how the values for "Local Orig Rec MOU," "Local Term Rec MOU," "EAS Orig MOU" and "EAS Term MOU" were compiled.
x. Do Column K and L contain all MOUs applied in the original cost study?
1. If no, identify where other MOUs applied in the original cost study be found?
2. If yes, do the MOU's in columns K and L contain both local and interexchange MOUs?
3. If yes, explain why the total MOUs shown in cell l58 do not equal the MOUs shown in cell D38 of Tab "EO Switching" of the original cost study.
4. Is the ratio of total terminating MOUs to total originating MOUs 46% to 54%?
5. Is this ratio consistent with historical traffic patterns?
6. If not, explain.

b. Referring to Tab "Minutes" on the Modified MOU Spreadsheet:
i. Unlike the Original MOU Spreadsheet, the Modified MOU Spreadsheet calculates total MOUs using both "Orig Rec MOU" and Term Rec MOU." Explain the rationale for the change.

ii. Is "Orig Line to Line MOU" calculated by the following formula: Add "Orig Rec MOU" and "Term Rec MOU," then divide that sum by the sum of "Orig Rec PEGS" and "Term Rec PEGS," and then multiply that dividend by "Orig Line to Line PEG"?

iii. In no, explain the formula used.

iv. If yes:
1. Is this an attempt to calculate "line-to-line" MOUs?

2. Explain the rationale for calculating "line-to-line" MOUs by the use of PEG counts.

v. Does a "T/O ratio of "0" mean that the calculations assume that there are no "line-to-line" MOUs that originate and terminate in the same switch?

vi. Explain how the values for "Local Orig Rec MOU," "Local Term REC MOU," "EAS Orig MOU" and "EAS Term MOU" were compiled.

vii. Do columns L and M contain all the MOUs applied in the revised cost study?

1. If no, identify where other MOUs applied in the original cost study can be found?

2. If yes, do the MOUs in column L and M contain both local and interexchange MOUs?

3. Is the total of originating and terminating MOU the sum of cells l57 and M57?

4. Is that sum _____? (Confidential Information Redacted)

5. Explain why the sum of Cells L57 and M57 does not equal the MOUs shown in cell D38 of Tab "EO Switching" of the modified cost study.

6. Does cell D38 of Tab "EO Switching" of the modified cost study use only terminating MOUs?

7. Is the ratio of total terminating MOUs to total originating MOUs ____% to ____%? (Confidential Information Redacted)

8. Is this ratio consistent with historical traffic patterns?

9. If not, explain.

RESPONSE:

a.

i. Orig Rec MOU - Originated Recorded Minutes of Use represents all originated usage for all recorded trunks (which would include line to trunk, trunk to line and trunk to trunk usage).

ii. Yes.

iii. See answer to DR# 187 (a)(ii).

iv. Windstream was not able to determine Total Minutes for a switch. Windstream was able to determine total PEGS and so Windstream used the ratio between Orig Rec PEGS and Orig Rec MOU to calculate the Total Orig MOU.

v. See answer to DR# 187 (a)(iv).

vi. Yes

vii. Yes.

viii. Yes.

ix. All trunk groups labeled Local or EAS from Tab "Total Recorded Trunk"were tabulated using the minute columns for those rows.

x. No.

1. The minute study only identifies the Local and EAS minutes, minutes for Switched Access, Recip Comp and Host to Remote minutes come from CABS.
2. See answer to DR# 187 (a)(x)(1).
3. See answer to DR# 187 (a)(x)(1).
4. Yes.
5. That analysis has not been performed to determine if that ratio is representative of historical trends.
6. See answer to DR# 187 (a)(x)(5).

b. i. Regarding the Modified MOU Spreadsheet, I do not see that calculation performed.

ii. Yes.

iii. See answer to DR# 187 (b)(ii).

iv. 1. Windstream East was not able determine Line-to-Line Minutes for a switch. Windstream East was able to determine Line-to-Line PEGS and so Windstream East used the ratio between Orig Rec PEGS + Term Rec PEGS and Orig Rec MOU + Term Rec MOU to calculate the Line-to-Line MOU.

2. See answer to DR # 187 (b)(iv)(1).

v. No. For every originating Line-to-Line minutes there would be a terminating line-to-line minute, but for the purpose of this study it only

looks at the originating line-to-line minutes because the customers are located in the same switch and the call is only switched once. If terminating line-to-line minutes were included, minutes would be overstated.

vi. Those values are a summary of all recorded trunks in each switch that have been identified as either a local trunk or EAS trunk and the values have been annualized.

vii. No.

1. Minutes from the original cost study were not used in the modified cost study. When Windstream East updated the cost study "Revised Cost Study", the minutes were updated and minutes from the original cost study were not used.
2. See answer to DR # 187 (b)(vii).
3. The sum of the cells L57 and M57 are the totals for originating Line-to-Line, originating and terminating local and originating and terminating EAS minutes of use.
4. The sum _____ is the sum of originating Line-to-Line, originating and terminating local and originating and terminating EAS minutes of use. (Confidential Information Redacted)
5. See reponse to DR# 111 (a). Cells L57 and M57 are the actual minutes that are typed into the modified cost study on Tab "Demand" (cells D50 and D51 and in cells D54 and D55).
6. No, see answer to DR # 111 (a).
7. No, that is the ratio for terminating local and terminating EAS to originating Line-to-Line, originating local and originating EAS minutes of use.
8. See answer to DR# 187 (a)(x)(5).
9. See answer to DR# 187 (b)(vii).

WINDSTREAM PARTY SUPPORTING RESPONSE: Kerry Smith

188. Regarding the statement that "customers moved from dial-up ISP to DSL".
   a. Provide the dial-up monthly minutes of use for each exchange for 2007 through 2009.
   b. Does the revised cost study include DSL MOUs in calculating cost?
   c. If not, does the revised study remove from the calculations all investment and cost related to the provision of DSL service?
      i. If such investment and cost are removed, identify where this is shown in the revised cost study.

RESPONSE:

a. Windstream East did not track dial-up ISP minutes to provide the requested information.

b. No.

c. The updated cost study removes all cost that is not associated with switching.
   i. Cost associated with DSL service are not included in cost associated with switching traffic, so there is nothing to remove from the study.

WINDSTREAM PARTY SUPPORTING RESPONSE: Kerry Smith

189. Regarding the statement: "However, in determining the line to line usage, the previous process estimated this usage which was not working properly and was overstating the line to line minutes. A new process identifies the actual line to line minutes for all switches. The revised model uses the actual line to line minutes."

a. Are trunk MOU values in the revised study computed using an estimate or the based on actual data?
   i. If actual data, identify where in the cost study or supporting documentation can be found.

b. Did the original cost study calculate line-to-line minutes?
   i. If yes, identify where such calculations can be found.
   ii. If no, explain why not.

c. Explain why you claim that the previous process was overstating line to line minutes.

d. Explain why you claim that the modified process corrects the asserted overstatement.

RESPONSE:

a. Actual data.
   i. See worksheet "KY East Trunk Usage" in the revised switch study.

b. Yes, it attempted to calculate line-to-line minutes.
   i. See worksheet "MOU" in the original switched study in columns D and F.
   ii. See response to DR# 189 (b)(i).

c. The previous study included both originating line-to-line minutes and terminating line-to-line minutes within the same switch. As stated in response to DR# 187(b)(v), including both originating and terminating line-to-line minutes would be overstating minutes because the customers are in the same switch and the switch is only used once.

d. As explained in response to DR# 189 (c), the modified process excludes the terminating line-to-line minutes, because including them would be double counting the minutes.

WINDSTREAM PARTY SUPPORTING RESPONSE: Kerry Smith

Respectfully Submitted,

Date: 17 SEPTEMBER 2010 By: /Robert C. Moore

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Exhibit A
"DR#153a_SSRN-id1435131[1].pdf"

See attached.

Exhibit B
"DR#158_DR#159_Regulatory Account Balances.xls"

See attached.

CERTIFICATE OF SERVICE

I hereby certify that a true and correct copy of the foregoing pleading was sent via hand delivery on this the 17th day of SEPTEMBER 2010 on Jeff R. Derouen, Executive Director, Public Service Commission, 211 Sower Boulevard, P.O. Box 615, Frankfort, Kentucky 40602-0615 and by first class mail, postage pre-paid on Mary K. Keyer, General Counsel/AT&T Kentucky, 601 West Chestnut Street, Room 407, Louisville, Kentucky 40203, on Paul Walters, Jr., 15 East 1st Street, Edmond, Oklahoma 73034.

Robert C. Moore

EXHIBIT A

JARAF

THE JOURNAL OF APPLIED RESEARCH IN ACCOUNTING AND FINANCE

VOLUME 4, ISSUE 1, 2009

Leases, Debt and Value
Aswath Damodaran

Cost of Capital Estimation in the Current Distressed Environment
Roger J. Grabowski

Pre and Post Tax Discount Rates and Cash Flows - A Technical Note
Wayne Lonergan

MGSM
MACQUARIE GRADUATE SCHOOL OF MANAGEMENT

The University of Sydney

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Editorial

Oscar Wilde's definition of a cynic was of a person who knew the price of everything and the value of nothing. The turbulent state of global financial markets in recent past has resulted in an enormous number of instances where it has not been possible to be reasonably certain about either. This represents a substantial challenge to scholars and practitioners of finance and related disciplines.

While understanding the sources and dimensions of value consistently represents a deep intellectual challenge, the extraordinary volatility and uncertainty evident in financial markets in recent past has served to materially increase the difficulty of this fundamentally important form of enquiry. The contents of this edition of *JARAF* have been crafted with this in particular in mind.

This volume commences with an article by Professor Damodaran on the problem of leasing obligations in the context of valuation. Some problems are perennial, market volatility or not and this article provides comprehensive insights into the process of adjusting key firm financial measures to take account of the presence of off-balance sheet leasing arrangements.

By contrast, the second article in this edition covers a problem brought into particular relief by the global financial crisis, the inherent difficulty of estimating cost of capital in such an environment. Roger Grabowski's article examines this problem in considerable detail and should be of enormous practical assistance to readers.

The third article in this volume, authored by Professor Lonergan, also deserves careful scrutiny, particularly amongst the practitioner community. In this detailed and forensically argued piece, the author highlights a series of important technical issues relating to the application of pre and post tax discount rates to streams of cashflows in the context of valuation.

As the journal enters its fourth year, we are delighted to be able to report that the rate at which manuscripts published in the journal are accessed by readers continues to grow substantially. We are also enormously pleased to announce the expansion of our editorial board to include Professor Aswath Damodaran of the Stern School of Business, New York University, Professor Pablo Fernández of IESE Business School at the University of Navarra and Professor Stewart Jones of the Faculty of Economics and Business at the University of Sydney.

We express our sincere gratitude to all editorial board members for their continued work in support of *JARAF* and to each of the authors who have entrusted their thought leadership to the journal.

Tyrone M. Carlin and Nigel Finch
Sydney - July 2009

Cost of Capital Estimation in the Current Distressed Environment

Roger J. Grabowski

The current economic environment has created challenges in estimating the cost of equity capital ("COEC") and in estimating the appropriate overall cost of capital (i.e., the weighted average cost of capital or "WACC"). Since late 2008, new complications have arisen in estimating the cost of capital. Traditional methods typically employed in estimating the COEC and the WACC are subject to significant estimation and data input problems. This paper attempts to address some of these issues and offers some specific recommendations on dealing with these issues. First, U.S. Treasury bond ("T-bond") yields, the typical benchmark used in either the Capital Asset Pricing Model ("CAPM") or the Build-up methods of estimating COEC, were temporarily low for several months, resulting in unreasonably low estimates of COEC as of the important valuation date, December 31, 2008. In the past several weeks T-bond yields have returned to more normal levels. Second, the expected equity risk premium ("ERP"), the rate of return expected on a diversified portfolio of common stocks in excess of the rate of return on an investment in T-bonds, has likely increased as the broad stock market level has declined. Third, because the stock market correction has been heavily concentrated in the financial services sector and in highly leveraged companies, the commonly-employed methods we use for estimating betas, the risk measure in the traditional CAPM, are potentially flawed providing faulty estimates of risk for non-financial and companies with little debt. The result is that at the very time when one assumes a priori that estimates of COEC have increased, the methods we traditionally use to estimate the COEC are providing calculations that imply risk has declined. Fourth, current leverage ratios are likely not sustainable in the long-term for many companies and one needs to consider estimating cost of capital with expected changing capital structures. Fifth, because income subject to income taxes is and will continue to be less than zero for many companies, one cannot automatically use an after-tax cost of debt capital (i.e., multiply the interest rate by one minus the income tax rate) in calculating an appropriate WACC. Sixth, one must always test the resulting cost of capital estimates for reasonableness and not simply apply data or formulas by rote.

Introduction

The current economic environment has created challenges in estimating the cost of equity capital ("COEC") and in estimating the appropriate overall cost of capital (i.e., the weighted average cost of capital or "WACC"). Since late 2008, new complications have arisen in estimating the cost of capital. Traditional methods typically employed in estimating the COEC and the WACC are subject to significant estimation and data input problems. This paper attempts to address some of these issues and offers some specific recommendations on dealing with these issues.

Yields on the Risk-Free Benchmark Rate

The general notion of a "risk-free rate" is that it is equivalent to the return available on a security that the market generally perceives as free of the risk of default as of the valuation date (Wiley, 2008). Analysts typically use the yield to maturity on U.S. government securities as of the valuation date, as proxy for the risk-free rate in estimating the COEC.

Conceptually, the risk-free rate reflects a return on the following three components: *Rental rate*, *Inflation*, and *Maturity risk* or *investment rate risk*: The risk that the principal's market value will rise or fall during the period to maturity as a function of changes in the general level of interest rates.[1] While all three of these economic factors are embedded in the yield to maturity for any given maturity length, it is not possible to observe the market consensus about how much of the total yield for any given maturity is attributable to each of these factors.

Note that the risk-free rate *includes inflation expectations*. Therefore, when this rate is used to estimate a cost of capital to discount expected future cash flows, those future cash flows also should reflect the expected effect of inflation. In the economic sense of nominal versus real dollars, we are building a cost of capital in nominal terms, and it should be used to discount expected returns that also are expressed in nominal terms.

In valuing "going concern" businesses and long-term investments made by businesses, practitioners generally use long-term government bonds as the risk-free security and estimate the ERP in relation to long-term government bonds. This convention represents a realistic, simplifying assumption. Most business investments have long durations and suffer from a comparable reinvestment risk as long-term government bonds. As such, the use of long-term government bonds and an ERP estimated over those long-term bonds more closely matches the investment horizon and risks confronting business managers in capital decisions and valuators in valuation analyses.

Many financial analysts today use the 20-year U.S. T-bonds yield to maturity as of the effective date of valuation as the risk-free rate benchmark when developing COEC estimates. Some analysts use either a 10-year or a 30-year T-bond yield; in theory one should then develop ERP estimates based on expected returns in excess of the yields for those maturities. However, as a practical matter these yields usually do not differ greatly from the 20-year yield on T-bonds.[2]

In applying the CAPM or the Build-up method, the analyst typically begins with the T-bond yield to maturity as of the valuation date and adds an estimate of the ERP (in the case of the CAPM, the ERP estimate is multiplied by the risk factor *beta*). The ERP estimates developed from historical data are typically measured relative to the T-bond yield.

Yields on 20-year (constant maturity) T-bonds as of December 31, 2008, had fallen to 3.03 percent. December 31, 2008, is a particularly important date because many valuations are performed as of the end of the calendar year, thus requiring COEC to be estimated as of that date.

Most analysts would agree that the world economies are in crisis. Financial crises are often accompanied by a "flight to quality" such that the nominal returns on "risk-free" securities fall dramatically for reasons other than inflation expectations. Recent macroeconomic research suggests that short-term inflation expectations remain fairly stable, and therefore the dramatic decline in the T-bond yields in November and December 2008 was not likely due to expected declines in expected long-term inflation (Chari & Kehoe, 2008). In fact, long-term (10-year horizon) Consumer Price Index (CPI) expectations continued to be at 2.5 percent at the end of 2008 (Federal Reserve Bank of Philadelphia, 2008).

While short-term inflation expectations have decreased (Federal Reserve Bank of Philadelphia, 2008), many commentators are warning that long-term inflation will increase, not decrease, given the projected U.S. budget deficit. Based on surveys of professional forecasters, yields on long-term U.S. government bonds are also expected to increase.

Over the last several months, yield on 20-year (constant maturity) T-bonds have increased. For example, as of May 31, 2009, the yield had increased to 4.36 percent. It appears that the "flight to quality" that drove the risk-free rates to unreasonably low levels as of December 2008 has eased and yields on T-bonds appear to be at more normalized levels. According to Federal Reserve Chairman Bernanke in his prepared testimony to the U.S. House of Representatives' Budget Committee on June 3, 2009, regarding recent increases in yields on longer-term T-bonds and fixed rate mortgages:

> "These increases appear to reflect concerns about large federal deficits but also other causes, including greater optimism about the economic outlook, a reversal of flight-to-quality flows, and technical factors related to the hedging of mortgage holdings."

Further, the implied forward volatility (based on options on exchange traded funds or "ETFs") on 20-year T-bonds in November and December 2008 had increased significantly (was approximately double the implied forward volatility in earlier months[3]), suggesting that the market was uncertain that the lower yields (and correspondingly higher prices) in November and December 2008 were sustainable. By May 2009, the implied forward volatility had decreased but was still approximately 45 percent greater than the months leading up to the November-December "flight-to-quality".

In summary, the evidence suggests that the yield on T-bonds represented an aberration as of December 31, 2008, overly influenced temporarily by the "flight to quality".

What should the analyst do when estimating the appropriate risk-free rate in developing the COEC? This author suggests that one approach as of December 31, 2008, is to ignore the "spot" yield on 20-year T-bonds as of that date and use a longer-term average T-bond yield (e.g., 4.5 percent).[4] One should then match the T-bond yield with the appropriate conditional ERP estimate for this stage in the business cycle.[5]

Equity Risk Premium

A long-term study of realized premiums in excess of the return on T-bonds indicates that realized premiums, on the average, have decreased as the T-bond yields decrease (Damodaran, 2008). But these are not ordinary times. If one simply added an estimate of the ERP derived during "normal" economic times to the "spot" yield on 20-year T-bonds on December 31, 2008, one would likely have arrived at too low of an estimate of the COEC.

As is explained in *Cost of Capital 3rd ed.*:

> The evidence presented above [that the long-run ERP is between 3.5% and 6%] represents a long-term average or unconditional estimate of the ERP. That is, what is a reasonable range of ERP that can be expected over an entire business cycle? Where in this range is the current ERP? Research has shown that ERP is cyclical during the business cycle. We use the term "conditional ERP" to mean the ERP that reflects current market conditions. For example, when the economy is near or in recession (and reflected in recent relatively low returns on stocks), the conditional ERP is more likely at the higher end of the range. When the economy improves (with expectations of improvements reflected in recent increasing stock returns), the conditional ERP moves toward the mid-point of the range. When the economy is near its peak (and reflected in recent relatively high stock returns), the conditional ERP is more likely at the lower end of the range (Pratt & Grabowski, 2008).

As the stock market has fallen in late 2008, the ERP implied by the *S&P 500* has increased (Damodaran, 2008). In one analysis, the implied ERP has risen to the high end of the range cited in the above quote.[6]

If one views pricing of the stock market over the long-term, one can see in the figure 1 that we are currently below the long-term average and should be at the high end of the long-term ERP estimated range.

What should the analyst do in estimating the ERP? This author suggests that, given current market conditions, one should consider using an estimated ERP of 6.0 percent, the upper end of the range of the research on long-term (normal) ERP.[7] As expected economic conditions improve and stock prices increase; the ERP can be expected to decrease in the future.

Beta Estimates

If one employs the typical methodologies for estimating betas by regressing returns of the subject company on the returns for a broad market index (e.g., *S&P 500*), one likely will find beta estimates that have changed dramatically compared to periods before mid-2008, particularly for companies with little or no long-term debt.

What happened? Overall stock market indices such as the *S&P 500* have been overly influenced by financial stocks and stocks of highly leveraged companies. The relative volatility of returns of a company with no debt has declined relative to a market whose returns (negative) are over-weighted by financial companies. But the business risk relative to the overall economy did not change during this period. But relative to a market over-weighted by financial companies, it appears to have decreased in risk.

Figure 2 helps explain these relationships. One can see the severe downward adjustment to the financial sector stocks, which initially dragged the *S&P 500* down even as the other sectors were bouncing back. Ultimately, other sectors followed suit as economic conditions in other sectors of the economy deteriorated further.

During these past months, we have in essence observed a process of re-pricing of the stock market in general and, in particular, of many stocks at new lower prices. The low beta estimates for some stocks, derived from analyzing stock returns during a "look-back period" result from the negative returns on the stock market portfolio and many other stocks as the stock market seeks its new, lower equilibrium price. The low beta estimate currently observed above is not from a change in the underlying long-term relative business risk to the business risk of the economy as represented by the stock market. For example, prices of financial sector stocks (and their returns) have trended downwards looking for new equilibrium levels; once those levels are reached, the relative volatility of these stocks to the stock market will return to "normal". But during this adjustment period, prices of many stocks with little or no-debt have moved downward relatively little (or not as much as the market portfolio), making their observed beta estimates lower than historic norms and lower than what one might expect in the future after the market portfolio is finished re-pricing at a new, lower equilibrium level.

Figure 1: S&P 500 Index Jan 53 - May 09

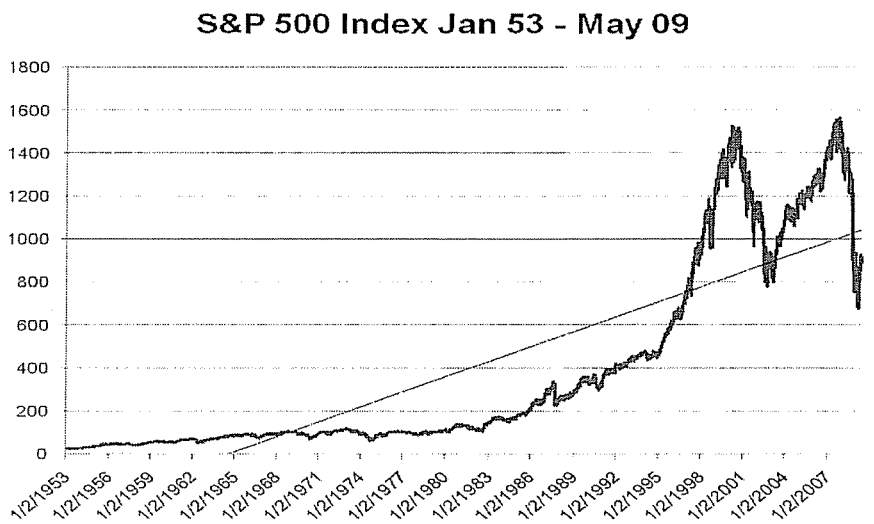


Figure 2: Price return on Various S&P Indices from Dec 2006 through May 2009

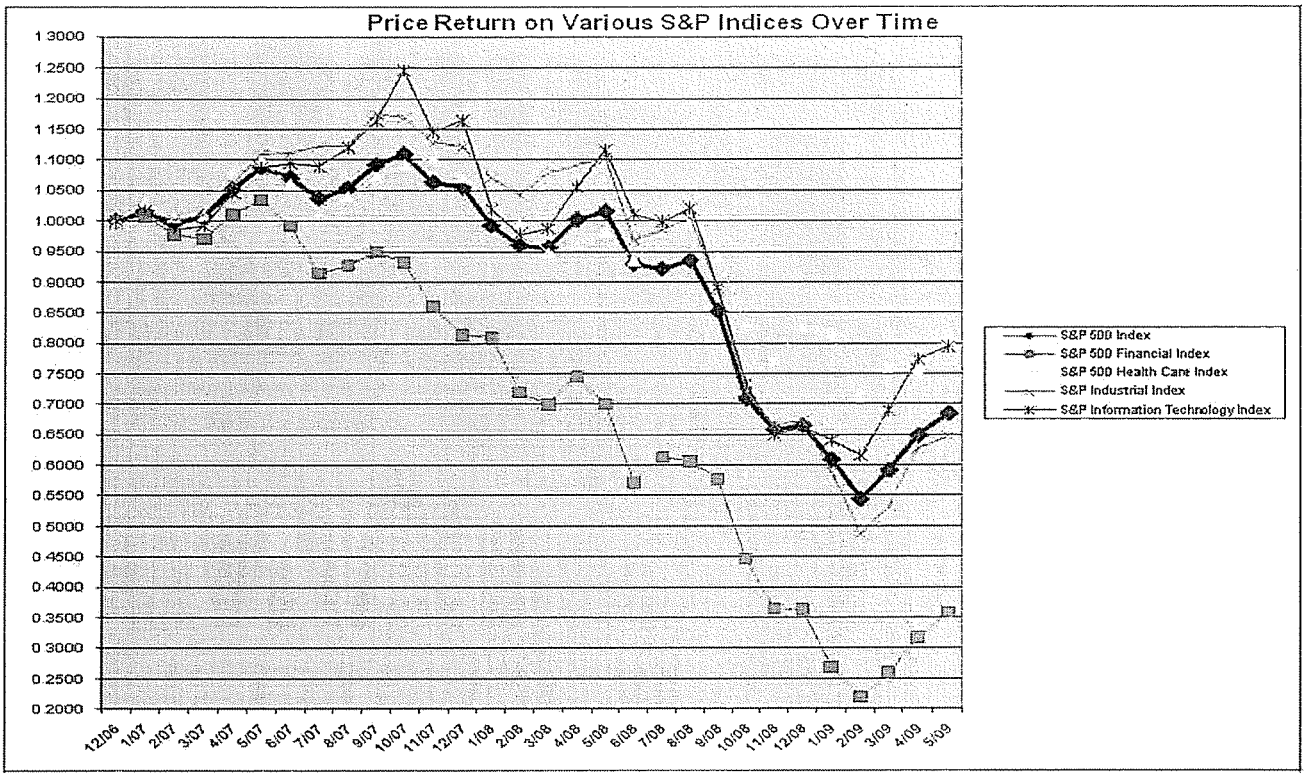
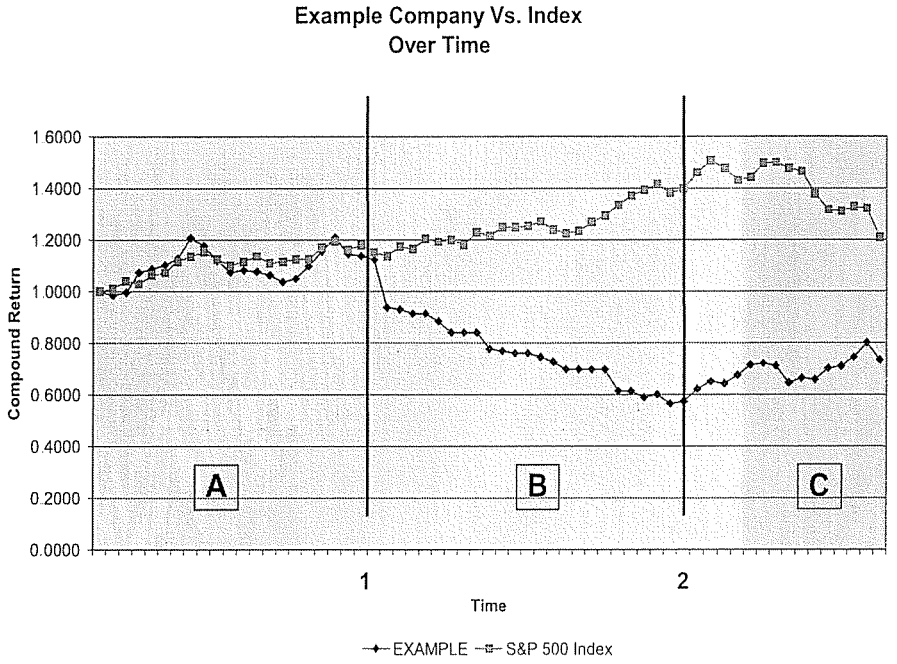


Figure 3: Example Company Vs. Index over Time



While such adjustments in pricing occur for some stocks during all time periods, over these past few months we have seen the stock market (as represented by the *S&P 500* for example) experience a major re-pricing led by financial sector stocks and highly leveraged non-financial stocks. Stocks of companies with traditionally high operating leverage (operating income and prices moving up faster than the overall market during upward market price movements, and moving down faster than the market when the market declines) appear to indicate that operating leverage has decreased when in fact their underlying operating leverage has not changed.

The best way to identify and observe the condition just described is to graph the returns of a particular company (or industry) over time relative to the overall market. Figure 3 presents an example of an adjustment in pricing for a hypothetical sample company.

In period A, the sample company essentially moves with the market. In period B, the sample company is experiencing a downward re-pricing, and during this period the sample company's returns are not as strongly correlated with the movement of the overall market. In Period C, the re-pricing of the sample company is complete, and the sample company's returns are once again moving in tandem with market returns.

If one were to compute beta at Time 1, which includes period "A" as the "look-back" period, the beta estimate would reflect the normal relationship between the sample company's returns in the market's returns. In contrast, computing a beta estimate at Time 2, which includes period "B" (the sample company's re-pricing by the market) as the "look-back" period, would not yield a reliable forward-looking beta estimate. In fact, it would yield a beta estimate lower than expected since the sample company's return was negative in a period when the market was generally rising. This result is counter-intuitive given the sample company's downward re-pricing, i.e., the operating risk of the sample company has not declined over period "B" and will resume its "normal" relationship to the market in period "C."

If one considers a company with little or no long-term debt, the lower beta estimate reflects that stock's lower risk during the market's adjustment period. But looking forward to periods following the market's re-pricing, one must assess whether the *true* beta of a company (i.e., the expected relationship of returns for a subject company to changes in the economy as represented by a stock market index like the *S&P 500*) will be better represented by the longer term beta estimate or the recent lower estimate measured from a date like Time 2 over a recent look-back period.

One should also consider examining alternative beta estimation methods, such as Sum Beta estimates. Sum Beta estimates generally result in more accurate (higher) estimates of beta for smaller capitalization companies (Pratt & Grabowski, 2008),[8] and in the current environment, as market capitalizations for many companies have decreased; more companies are considered small and mid-capitalization companies.

"Adjusted beta" estimates provided by Bloomberg are not good alternatives because those estimates are not really adjusted the way one thinks of "adjusted" - changed based on specific characteristics of the company. Rather, Bloomberg adjusted beta estimates are somewhat arbitrarily adjusted toward 1.0, under the premise that eventually every company's beta will converge to the market beta; this adjustment is not therefore based on specific industry or company factors.

What should the analyst do to estimate an appropriate beta? This author suggests that one start by graphing the monthly returns for the subject company and the *S&P 500* (both measured on the "y" axis) over time (measured on the "x" axis) for the last 24-36 months.[9] One can then verify if and when the underlying relationship between returns for the subject company and returns for the market may have changed.

One might then consider taking the average of the month-end beta estimates over, say, a 12-month period during which the relationship appears to be more "normal". This is the beta estimate that one might reasonably expect going forward, once the stock market has completed its re-pricing to a new, lower equilibrium price.

Regardless of the methodology or the data service used for beta estimates, one must remember that beta is an estimate of the expected *future* relationship between changes in the returns on the subject company's stock to changes in the stock market returns. In other words, the application of CAPM requires the use of a forward-looking beta as a measure of future risk. As such, one must be cautious that the estimates make sense relative to the underlying risk of the stock and not simply rely on "spot" estimates using a single beta estimation methodology derived from returns during a "look-back" period that may not represent the expected relationship of returns in future periods.[10]

Leverage - Impact on Beta Estimates

Beta estimates derived from the relationship of observed stock returns to market returns are a function of all risks affecting a company: both operating leverage (change in operating earnings as the market for the company's products increases and decreases) and financial leverage (the added variability in net income and stock returns because the company finances its investments partially with long-term debt capital). If one is estimating the COEC for a public company, one can use the observed relationship of returns on that company's stock relative to returns on the market portfolio over a "look-back" period to help make a forward beta estimate, based on the company's current amount of debt financing. But if one is estimating the COEC assuming that the current level of debt will actually change, then the first step should be to "un-lever" the beta estimate (removing the effect of financial risk from the beta estimates) for the subject company, to arrive at what is often called an "asset beta" estimate for the subject public company.

If one is estimating the COEC for a reporting unit of a public company (e.g., for goodwill impairment testing under *Statement of Financial Accounting Standard No. 142*) or for a closely-held company, one must use beta estimates from guideline public companies as a proxy beta estimate for the subject reporting unit or closely-held company.[11] One first "un-levers" the proxy beta estimates for the guideline public companies to arrive at an "asset beta" estimate.

An underlying principle that one must remember is that we are looking to measure the risk of the subject public company, subject reporting unit or closely-held company and determine the appropriate cost of capital for the associated risk.

In the case of a public company, one "re-levers" the asset beta to reflect the financing structure a potential acquirer may use or a target debt structure for the subject company.

In the case of reporting units of a public company, one "re-levers" the un-levered beta estimate for the appropriate leverage that market participants (companies in the pool of possible acquirers for the reporting unit) would use in valuing

the reporting unit. In determining the appropriate leverage, one must consider: (1) which companies comprise the pool of likely market participant buyers (because the premise to be taken into account in testing for goodwill is a hypothetical "exit price" premise, i.e. what is the appropriate cost of capital as if the reporting unit were sold as of the "testing date"); and (2) how would those market participant buyers finance the purchase of the reporting unit. One cannot assume that if the market participant buyers have a lower cost of capital they would price the acquisition of a reporting unit using their own lower cost of capital; doing so is equivalent to transferring value to the hypothetical seller. If the reporting unit is economically distressed (i.e., operating income is suffering) or the company owning the reporting unit is financially distressed (i.e., there is a high risk that the company may default on its debt), market participants will estimate a cost of capital in valuing the reporting unit which appropriately reflects that distress, rather than the lower cost of capital of the market participant's own business.

In the case of a closely-held company, one does not know the market value of the closely-held company until the valuation process is completed, but the re-levered COEC is dependent upon the ratio of debt to equity capital measured at market value, one must apply an iterative process to determine the appropriate re-levered beta and COEC (Pratt & Grabowski, 2008).

Analysts typically use standard formulas for un-levering observed beta estimates. Such un-levering in theory removes the effect of financial leverage, and all that remains is the expected variability in stock returns due to operating leverage.

Once analysts conclude on a reasonable asset beta estimate for the subject business, then the analyst may re-lever the beta to an appropriate debt level based on the debt capacity of the subject business. The debt capacity may be represented by industry average ratio of debt-to-equity, for example, if the analyst were estimating the value of a reporting unit in terms of market participants, or a target debt-to-equity ratio, for example, if the analyst were estimating the value of the subject company. But one should not automatically assume that historical debt-to-equity ratios represent current debt capacity. Rather, one needs to analyze the expected available cash flows given the likely lower expectations in the current economic environment.

The typical "textbook" un-levering and re-levering formulas used are based on more stable times. For example, the "Hamada formula," which is often (mis-) used, will be particularly problematic as this model assumes (1) that the current debt remains constant over time; and (2) the company will realize all income tax deductions on interest expense in the period in which the interest on debt is paid (Pratt & Grabowski, 2008). Implicit in this formula is the assumption is that debt beta is zero and tax shields are certain. During the current period of economic crisis, we have seen the percentage of debt to equity (at market values) rise dramatically, as equity values have shrunk thereby increasing the risk of realizing tax deductions in the period in which interest is paid. Consequently, analysts should consider other models of unlevering.

The "Miles-Ezzell formula" is an appropriate formula for un-levering and re-levering beta estimates when the underlying assumption holds that a constant debt-to-equity (at market value weights) capital structure will be maintained. That formula does adjust for the impact of joint risk taking between debt capital and equity capital through the introduction of (1) a beta on debt greater than zero; and (2) the risk that tax benefits from interest deductions will not be realized in the period in which the interest is paid (Pratt & Grabowski, 2008). The underlying assumptions are that debt beta is positive and tax shields are certain for only one period and uncertain afterwards. The Miles-Ezzell formula for un-levering beta is shown in equation 1.

$$B_U = \frac{M_e \times B_L + M_d \times B_d \left[1 - (t \times k_{d(pt)})/(1 + k_{d(pt)})\right]}{M_e + M_d \left[1 - (t \times k_{d(pt)})/(1 + k_{d(pt)})\right]} \quad (1)$$

where:

B_U = Unlevered beta of equity capital

B_L = Levered beta of equity capital

M_e = Market value of equity capital (stock)

M_d = Market value of debt capital

B_d = Beta of debt capital

t = Income tax rate for the company

$k_{d(pt)}$ = Cost of debt prior to tax affect

The companion Miles-Ezzel formula for re-levering beta is shown in equation 2.

$$B_L = B_U + \frac{W_d}{W_e}(B_U - B_d)\left[1 - \frac{(t \times k_{d(pt)})}{(1 + k_{d(pt)})}\right] \quad (2)$$

Debt betas can be measured using an estimation method over a "look-back" period. One can estimate the beta on debt based on a particular credit rating (either actual credit rating or a synthetic credit rating[12]). For example, the estimated debt betas by credit rating for U.S. corporate and high-yield long-term bond series as of the end of December 2008 and May 2009 are shown in Table 1 (Pratt & Grabowski, 2008).

Table 1: Estimated Debt Betas based on Credit Rating

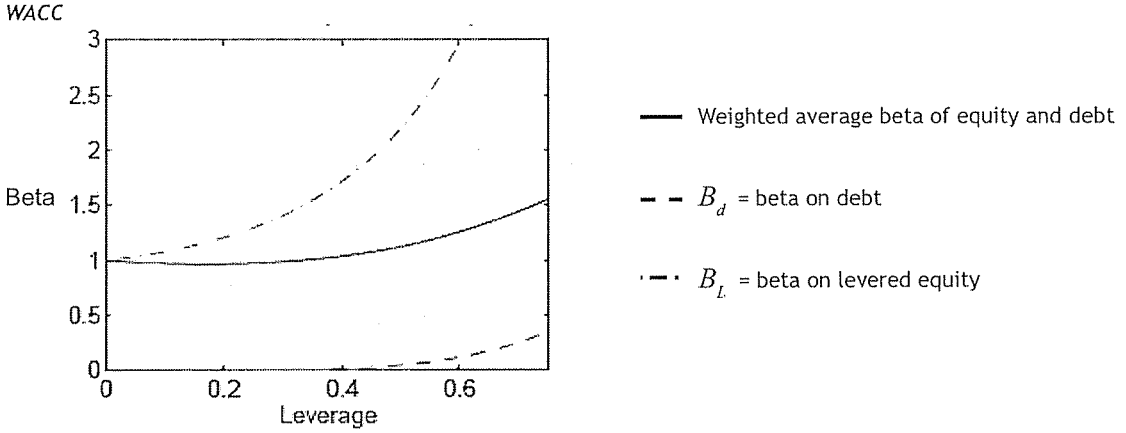
	Dec 2008	May 2009
Aaa	0.12	0.20
Aa	0.17	0.21
A	0.35	0.33
Baa	0.42	0.36
Ba	0.68	0.55
B	0.77	0.66
Caa	1.11	1.00
Ca-D	1.50	1.49

Source: Duff & Phelps calculations

Debt beta estimates change over time and these current debt betas have increased relative to debt beta estimates in earlier years (as the current market considers debt capital financing to be more risky today). This makes the use of the correct un-levering formula more critical. Debt betas indicate the amount of risk that bond investors are sharing with equity investors.

But even the Miles-Ezzell formula may understate the risk brought on by debt levels relative to the market value of equity. There are alternate formulas one should consider (Pratt & Grabowski, 2008, p.128). Debt levels have increased (as equity has been re-priced downward), decreasing the likelihood that the tax benefits of debt financing will be fully realized.

Figure 4: Relationship between Equity and Debt Betas and WACC



The affect of increasing debt levels is that the COEC likely is understated by using any of the traditional un-levering formulas. All of the formulas define linear relationships. Research indicates that the correct relationship is not linear as leverage increases; rather the COEC increases at an increasing (or exponential) rate as leverage increases.

Figure 4 displays the likely market relationship of debt and equity betas as the level of debt increases (Korteweg, 2007). In this market, leverage is increasing just because stock market capitalizations are decreasing.

As the levels of debt to equity (measured at market values) increase, the costs of financial distress increase as well (value lost due to the increase in the chance of default induced by the firm's debt adjusted for the present value of the expected tax deductions on interest payments on the debt). One study quantifies the cost of economic distress at varying levels of debt.[13]

The Duff & Phelps *Risk Premium Report* provides data on realized equity returns in excess of the returns predicted by CAPM for "High Financial Risk" companies.[14] This premium can be added to the standard CAPM estimate of the increase in the COEC for the market's estimate of the cost of distress (economic and financial distress). The premiums over CAPM as of December 31, 2008, averaged approximately 5 percent to 10 percent (Duff & Phelps, 2009).[15]

What should the analyst do relative to adjusting beta estimates for leverage? For companies using debt financing, one should estimate (i) the market value of the debt, (ii) the debt rating on the debt (either actual or synthetic based on coverage ratios published by ratings companies such as Standard & Poor's or Moody's) and (ii) the appropriate un-levered or asset beta using the Miles-Ezzell formula.

Once analysts conclude on a reasonable asset beta estimate for the subject business, then the analyst may re-lever the beta with the same formula to an average debt level market participants would use (for example, if the analyst were estimating the value of a reporting unit) or a target debt level (for example, if the analyst were estimating the value of the subject company, knowing that the current level of debt must be reduced over the long-term).

If the subject company at the assumed debt level is in distress, then one needs to consider adjusting the indicated COEC arrived at using standard techniques to adjust for the costs of distress.

But assume that we are valuing a subject company that is in such financial distress that the value of the assets (measured as the present value of expected net cash flows using the unlevered cost of equity capital) appears to be less than the face value of debt. Would anyone be willing to pay anything to acquire the equity? In essence, will the future value of equity possibly exceed the face value of debt? By estimating (1) the value of the possibility that the value of the business without regard to the current amount of debt will exceed the face value of debt at some future point in time and (2) the probability that this will occur at some future point in time, one is explicitly considering the right "tail" of the probability distribution of future net cash flows. The valuation of the subject company can be cast as a scenario analysis of discounted cash flows with the probability of each scenario or an option analysis (Pratt & Grabowski, 2008).

WACC and the Value of the Tax Shield

The textbook formula for developing the WACC is shown in equation 3.

$$WACC = (k_e \times W_e) + (k_p \times W_p) + (k_{d(pt)}[1-t] \times W_d) \quad (3)$$

where:

$WACC$	= Weighted average cost of capital (after-tax)
k_e	= Cost of common equity capital
W_e	= Percentage of common equity in the capital structure, at market value
k_p	= Cost of preferred equity
W_p	= Percentage of preferred equity in the capital structure, at market value
$k_{d(pt)}$	= Cost of debt (pre-tax)
t	= Income tax rate
W_d	= Percentage of debt in the capital structure, at market value

This textbook formula assumes that (1) tax deductions will be realized on interest payments in the period in which they are accrued, (2) earnings before interest and taxes (plus other income) are greater than financial expenses and the full tax

shield will be earned. (3) Market value of debt is equal to its book value and, hence, the contractual cost of debt is identical to the market cost of debt.

The correct analysis does not automatically multiply the interest rate by one minus the income tax rate. We can depict the correct relationship as shown in figure 5.

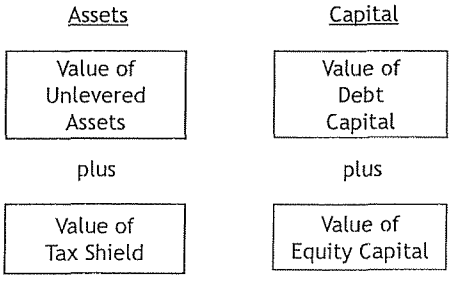
In this formulation, cost of debt capital is measured after the tax affect (k_d). The tax shield is the present value of the expected tax deductions, which today are likely to be more risky than in prior periods.

Do companies realize deductions at the statutory tax rate (get full benefit of interest tax deduction in the period in which the interest is paid)? Researchers have developed a simulated expected tax rate model that simulates taxable income into the future. This process has shown that many companies do not expect to pay the highest marginal rate for long periods of time. Because of tax loss carry-backs and carry-forwards and the cyclical nature of some industries, a substantial number of companies can expect a very low tax rate (Graham, 1991, 1996; Graham & Lemmon, 1998).

Graham and Mills (2007) completed a simulation study of corporate marginal income tax rates. They used U.S. tax return data for public corporations from 1990 to 2000 to simulate the corporate marginal tax rates for 1998 to 2000. They used this data because financial statement data can vary greatly from tax return data. Actual taxes paid are the correct measure for the cost of debt capital, rather than taxes reported under "book" financials for accounting purposes. These authors found that the simulated marginal tax rate most closely approximated future actual taxes paid. But when the simulated model is not available, they offer two formulas based on actual corporate income tax data to estimate the corporate marginal tax rate (Graham & Mills, 2007). These formulas can be useful in estimating the expected cash tax rate instead of arbitrarily using the marginal income tax rate.

As the market value of equity has declined for many companies the percentages of debt capital to equity capital have become out of equilibrium. Either the subject company will need to pay down debt (as they may or may not be able to refinance existing debt levels given actual and expected reductions in operating income many companies are experiencing) or raise equity capital to return to a long-term equilibrium where the cost of debt is manageable given operating income and the equity value is not penalized for carrying too much debt. The WACC can be applied under an assumption of changing capital structure; for example, as the debt changes over time to a target debt level, the WACC changes. In this formulation, as the debt level changes over time, the re-levered equity beta and the resulting COEC changes (Pratt & Grabowski, 2008).

Figure 5: Value of a Levered Firm



What should the analyst do in estimating the WACC for the subject company? One must estimate the expected income tax deductions that will be realized from the payment of the interest on the level of debt capital assumed in the re-levered capital structure. During these troubled economic times, one cannot simply assume that the full tax benefit will be realized as taxable income before interest will likely be zero or negative for many companies for 2008 and 2009. The assumptions embodied in the textbook WACC formula lead one to the conclusion that companies should abandon its use.

A generalized formula for the WACC that takes into account the probability that income tax savings on interest payments will not be realized in the period in which the interest is paid is shown in equation 4 (Velez-Pareja, 2008).

$$WACC_t = k_{eut} - \{TS_t / [\, M_{dt-1} + M_{et-1} \,]\} - \{(k_{eut} - k_{TS})\,(PV_{TSt-1} / [\, M_{dt-1} + M_{et-1} \,]\} \quad (4)$$

where:

k_{eut} = COEC, un-levered (COEC assuming firm financed with all equity) at time = t

TS_t = Tax shield realized at time = t

M_{dt-1} = Market value of debt capital at time = $t-1$

M_{et-1} = Market value of equity capital at time = $t-1$

k_{TS} = Discount rate on tax shield based on the risk of realizing the tax shield (typically either $k_{d(pt)}$, the pre-tax cost of debt, or k_{eu})

PV_{TSt-1} = Present value of the tax shield as of time = $t-1$

If we assume that $k_{TS} = k_{eut}$ (the variability of one realizing the tax shield is approximately equal to the variability of cash flows of the business before interest expense) then the above formula simplifies to equation 5.

$$WACC_t = k_{eut} - \{TS_t / [\, M_{dt-1} + M_{et-1} \,]\} \quad (5)$$

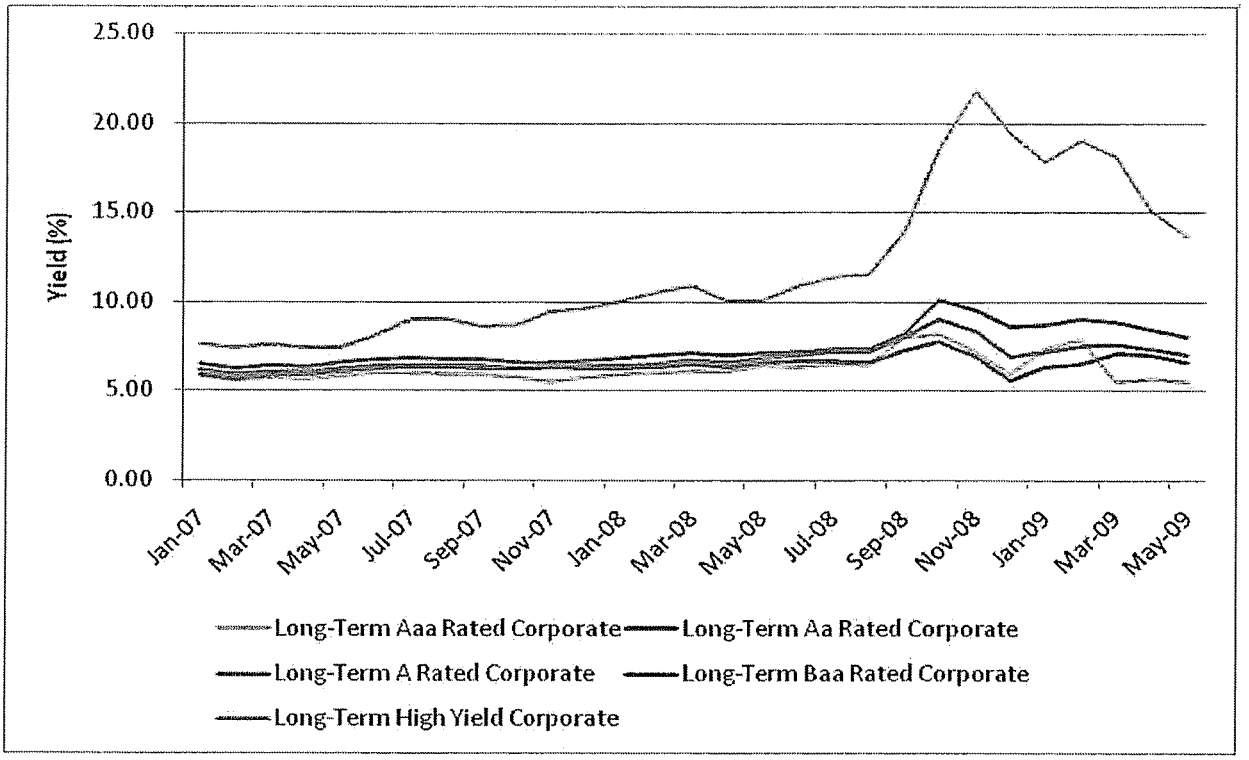
Cross Checking Cost of Capital Estimates

Today's environment is making cost of capital estimation particularly challenging. How can one check for the reasonableness of their cost of capital estimates?

One check you can make on COEC estimates is to fall back on the classic Graham and Dodd (Graham & Dodd, 1934). Their methodology was based on the yield of the bonds of the corporation (reflecting the leverage and the company-specific risks imbedded in the credit ratings) plus an average equity premium of, say, 4 percent. More recent research indicates that this spread goes up as the debt rating decreases (the average equity spread over corporate bond yield may be 4 percent, but it is greater for low rated bonds, say 7 percent for companies whose debt is rated B).

The COEC should logically exceed the yield investors are expecting on the company's debt capital (without reducing the yield by any income tax deductions that might be realized by the subject company). Equity capital is more risky than debt capital and the market will price each component based on their relative risk. In "normal times," one would examine the spreads over T-bonds. In this environment with the yields on T-bonds artificially low, spreads are not meaningful. Rather, one should look at the absolute level of market yield on the com-

Figure 6: Yields on corporate debt January 2007 through May 2009



pany's debt (market yield for the debt rating on the subject company's debt level, either actual or target, based on the actual or synthetic debt rating of the subject company) and the COEC should exceed that yield on debt (Chari et.al, 2008).

Another course of action is to use the data provided in the Duff & Phelps' *Risk Premium Report* to estimate the COEC. The Duff & Phelps *Report* provides equity risk premium data for use in a build-up model that is independent of estimates of beta. Two of the exhibits in the *Risk Premium Report* are particularly helpful in quantifying the increase in the COEC that may be appropriate given the increased risk of operations. One exhibit displays data on historic equity returns based on companies' average operating margins; another exhibit displays data on historic equity returns based on the variability of companies' operating margins (Duff & Phelps, 2009).[16] On average, the lower the operating margin, the higher the business risk; and on the average, the greater the variability in operating margin, the higher the business risk. The research contained therein demonstrates that stock market participants price increased risk. In this time of uncertainty, the subject company may not just be experiencing lower levels of earnings, but also increasing variability of earnings. If the subject company is expecting lower operating margins and increasing variability in operating margins, then the COEC has likely increased and the Duff & Phelps *Risk Premium Report* provides data to help quantify the appropriate increase.

Has the COEC for most companies increased? This author believes that the market is highly divided between companies with no or limited debt and companies with high levels of debt. If one looks at the absolute yields on Aaa and Aa rated companies in figure 6, one can conclude that there is likely only a small increase in the COEC and the WACC for companies with no debt or highly rated debt.

But as you look at the absolute levels of yields of lower rated corporate bonds in figure 6, the absolute level of yields has increased, indicating that the COEC has increased as well.

Conclusion

Estimating the appropriate cost of capital is always difficult as pricing risk is a difficult exercise. But in today's environment it is even more challenging and requires extreme care on the part of the analyst. This author is not suggesting changing or straying from the traditional models typically employed in estimating the COEC, but rather is advising analysts to take a closer look at the inputs that go into these models. Likely temporary aberrations in several of the inputs to traditional models during this period of economic crisis require analysts to apply more rigor and scrutiny in developing cost of capital estimate. Any concluded cost of capital estimation must balance the correct application of various models, including associated inputs, with the basic theory of finance and common sense over the long-term. JARAF

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This paper does not represent the official position of Duff & Phelps, LLC. and the author takes full responsibility for any errors.

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Footnotes

1. This risk gives rise to the so-called horizon premium.

2. It is also noted that the 30-year T-bond was characterized in several periods during the 1990's and 2000's by a lower yield-to-maturity than the 10-year T-bond. This was partially attributable to a lack of 30-year bond issuance by the US government, which resulted in a downward kink in the yield curve - this was not necessarily reflective of long-term risk perceptions, but rather a function of supply and demand on the 30-year T-bonds.

3. Implied volatility for 3-month options on iShares Lehman 20+year Treasury Bonds averaged 31.5 percent in November and December 2008 compared to an average of 15.0 during the first 10 months of 2008. The implied volatility was nearly 22 percent in May 2009.

4. Alternatively, one could use a "forward" rate on T-bonds.

5. If one uses the apparently abnormal spot yield on 20-year T-bonds as of December 31, 2008, in developing one's estimate of the COEC then one should use an ERP estimate consistent with the abnormal spot yield; see Aswath Damodaran, "What is the riskfree rate? A Search for the Basic Building Block," working paper (December 2008).

6. Damodaran On-Line Update, January 2009. Damodaran reported that the implied ERP as of January 1, 2009, equaled 6.43 percent (measured from the "below normal" yield on 10-year T-bonds) while the ERP estimate based on historic returns equals 3.88 percent. The implied ERP at January 26 stood at approximately 7 percent (measured from the "below normal" yields on 10-year T-bonds).

7. If one uses the apparently abnormal spot yield on 20-year T-bonds as of December 31, 2008, in developing one's estimate of the COEC and a higher ERP estimate consistent with the abnormal spot yield, one needs to update (reduce) their ERP estimate now that spot yields have returned to more normal levels and not simply adjust their ERP estimate annually as is common practice.

8. Pratt and Grabowski, op. cit., Chapter 10 and Appendix 10-B. The formula on page 154 contains a typographical error and should read: Market Lagged Coefficient = + [Varp(Market) * Covar(Company,Lagged) - Covar(Market, Lagged) * Covar(Company,Lagged)] / (Varp(Market) * Varp(Lagged) - Covar(Market,Lagged)^2)

9. This is not the typical graph of the returns with the S&P 500 on the "x" axis and the returns of the subject stock on the "y" axis. Rather, what is being suggested is a graph over time.

10. Beta estimation techniques continue to be the subject of research. For example, one working paper suggests that beta estimates based on short look-back periods are negatively correlated to future returns while beta estimates based on longer look-back periods are better correlated to future returns. See, Gerard Hoberg and Ivo Welch, "Long-Tem and Short-Term Market Betas in Securities Prices" (May 17, 2007).

11. Unless the risk of the reporting unit closely resembles that of the publicly traded company to which it belongs. In such a case, the asset beta of the subject company is the best proxy for the reporting unit's asset beta.

12. A synthetic debt rating is developed by the analyst from comparing coverage ratios for debt instruments rated by a rating service such as Moody's or Standard & Poor's.

13. Ibid.

14. Criteria for assignment to the high financial risk portfolio are: (1) companies in bankruptcy or liquidation; (2) companies with the 5-year average net income or operating income in the prior 5-years less than zero; (3) companies with negative book value of equity at any of the prior 5 fiscal year ends; or (4) companies with book value of debt to market value of equity greater than 80%.

15. Supplement to Duff & Phelps Risk Premium Report 2009 for high financial risk companies with Altman "z scores" indicating the company was in the "distress zone."

16. Duff & Phelps' Risk Premium Report, op. cit., Exhibits D-1 and D-2 respectively can be used to estimate the COEC using the Build-up method.

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