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FIXED INCOME INVESTING WHEN INTEREST RATES RISE

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Report Contents

Fixed Income Investing When Interest Rates Rise

Prompted by historically low U.S. interest rates, astronomical federal deficits, and the eventual reversal of the Federal Reserve's (Fed) easy money policy, many institutions are reviewing their fixed income exposure. Should they shorten duration to protect their portfolio against higher rates ahead? Although this seems intuitively appealing, experience indicates it is ill-founded: even if rates do rise, shorter-duration portfolios may not outperform.[1]

The Futility of Interest Rate Predictions

Twice a year, for more than 20 years, *The Wall Street Journal* has published the interest rate forecasts of top economists. These professionals have been wrong about 60% of the time in predicting the *direction* of interest rate moves for the following six months.[2] The results lead us to wonder why *The Wall Street Journal* bothers to conduct the survey at all! Certainly, institutional investors will fare no better than experts who live the rate markets daily.

Yield Curve Shifts and Twists

Over the last 30 years, yield curve shifts have offset the effects of rising interest rates on longer-duration bonds. As a result, the returns of longer-duration securities during such periods have often confounded conventional expectations by matching or even exceeding those of shorter-duration issues.

Duration ("modified" duration) measures the price sensitivity of a bond relative to a small change in interest rates. For high-quality, non-callable securities, duration is directly linked to maturity; that is, bonds with longer maturities have longer durations, all else equal.[3] Because longer-maturity bonds have longer durations, their prices are more sensitive to changes in interest rates. Conventional wisdom assumes that when interest rates rise or fall, the yields of bonds of different maturities will correspondingly "shift" in a parallel manner across the yield curve. If this were so, one could easily use duration to compute the returns of bonds of different maturities, given a specified change in interest

[1] An astute reader of our research may be aware that at the start of 2009, we recommended a barbell-type approach using cash, short-duration bonds, and Treasury Inflation-Protected Securities (TIPS), in addition to our customary recommendation of intermediate- to long-duration Treasuries. We made this recommendation after ten-year Treasury yields dipped below 2.1% for the first time since the early 1950s and 30-year Treasury yields reached all-time lows of nearly 2.5%. This advice was not based on a prediction about the future direction of interest rates. Rather, our main concern has been that the risk/return profile of intermediate- to long-term Treasuries was skewed to the downside, as benefits from a decline in yields in the event of continued economic weakness were limited relative to the price risk should inflation pressures (or expectations of inflation) rise or bond yields rise due to supply/demand pressures. Today, such diversification is not necessary, as yields have risen sufficiently that intermediate- to long-term sovereigns would be expected to provide adequate protection in the event that deflationary pressures resume or growth stagnates. The cost of diversification has also increased as cash yields have stayed ultra low while bond yields have risen in most markets (e.g., the ten-year U.S. Treasury yield is near 4% and the 30-year yield is above 4.5%). Further, inflation-linked bonds were a bargain at the time of our recommendation, but now, similar to sovereign bonds, they are overvalued.

[2] See "Just How Bad are Economists at Predicting Interest Rates? (And What are the Implications for Investors?)," *The Journal of Investing*, Summer 1997. The author, Kevin Stephenson, of Cambridge Associates, updates his findings periodically.

[3] Duration is also a function of the level of interest rates and the size and timing of a bond's coupons.

rates. However, the yield curve is *not* static, but dynamic, and history indicates that it generally flattens or steepens ("twists") when rates shift to any significant extent.[4] While parallel shifts dominate twists in general impact and frequency, there are environments in which twists have equal or greater impact on returns.

The curve typically twists in response to, or in anticipation of, policy shifts by the Fed. As the Fed eases, short rates fall, while longer rates—which the Fed does not control—do not decrease as much. Conversely, as the Fed tightens, short rates rise more quickly than long rates. Since the market generally does not wait for the central bank to act, but anticipates such policy shifts, the Fed can often influence the shape of the curve simply by signaling its intentions—which may preclude the need to act at all!

As of this writing (May 12, 2010), the Treasury yield curve is pricing significantly higher future interest rates on the short end of the yield curve. Such is always the case when the yield curve is steeply sloped, as it is now. For example, the two-year Treasury note yields about 0.89%, but the two-year yield two years forward is around 2.86%, and 4.43% four years forward. Likewise, the ten-year Treasury is yielding 3.57%, with its two-year forward yield at about 4.41%. The current yield curve tells us the market is anticipating (pricing) both higher yields throughout the curve and a flatter yield curve shape.

[4] In some cases, the term "butterfly" is used to describe a movement in the shape of the curve. Butterfly means that the curve steepens between some maturities while flattening between others. Pronounced curve moves of this type occur much less frequently than curve shifts and twists.

Bond Returns During Rising Rate Environments

Since 1970, there have been 11 periods during which the Fed increased the Fed funds rate by at least 100 basis points (bps) (Exhibit 2). Examining bond returns for these periods at four points along the curve—Treasury Bills (maturity less than one year), five-year, ten-year, and 20-year-plus maturities[5]—gives rise to the following observations:

- In five out of the 11 periods, government bonds of ten-year or longer maturities were the best performers, and in seven out of the 11 periods the longer maturities outperformed intermediate maturities (i.e., five years).
- Cash outperformed by a relatively small amount in three of the periods in which it was the top performer (1984, 1988–89, and 1994–95).
- Cash did markedly outperform in three periods in the high inflation, high interest rate environment of the 1970s and early 1980s, which were also periods when the Fed raised rates by 650 bps or more.

Over the past 40 years, short-duration instruments have not consistently outperformed long-duration securities during periods of rising interest rates. These findings lead us to conclude that duration adjustment at the institution level (that is, not mandated and controlled by the manager) is unlikely to add value. *An institution has to make two correct timing decisions in such a duration adjustment in order to be successful, and do so with limited transaction costs.*

Similarly, returns along the curve were strikingly consistent when market participants successfully

[5] Note that 30-year bonds were not issued in the 1970s, and issuance was again suspended during the first half of the last decade.

anticipated Fed moves. Exhibit 3 expands the periods shown in Exhibit 2 to include the three months before and after the Fed increased rates. In five out of the 11 periods, longer-duration instruments outperformed those of shorter duration. Returns across the three maturities were roughly comparable in five of the periods. T-bills outperformed in the high inflation, high interest rate environment of the 1970s and early 1980s, and significantly so in the three periods when the Fed raised rates by 450 bps or more. The differences between these results and those shown in Exhibit 2 are attributable to dramatic changes in Fed policy during the three months preceding or following the actual rate change.

The last two columns of Exhibits 2 and 3 compare two Barclays Capital benchmark index return series during periods of rising rates. In the seven periods from May 1981, the longer Government/ Credit Index typically matched or outperformed the shorter Intermediate Index—further confirmation that short-duration instruments do not always outperform those of longer duration during periods of rising interest rates.

For the four periods beginning with the 1988 period, yield curves flattened in response to the Fed's actions, and they usually flattened because the short end of the curve rose more than the long end (Exhibit 4). In other words, although their longer duration means that the price of longer-maturity bonds is more sensitive to changes in interest rates than the price of shorter-duration bonds, in these four instances, the fact that interest rates changed far more for short bonds than long bonds offsets the relative impact of the difference in duration. This twisting action explains why duration cannot be the only guide when making interest rate exposure decisions.

But Isn't This Time Different?

True, yields are at extremely low levels relative to the last 50 years of history. One may also rightly point out that the fiscal and monetary stimulus of the Great Recession might result in liquidity-fed unanticipated inflation. The combination may also lead foreign investors in U.S. Treasury notes to pull back. These are all legitimate factors that may lead to much higher interest rates, resulting in returns across the curve more like those of 1971 than 1984.

But the market does not collectively "see" these risks. As a result, while the curve is near its all-time steepness (in great part due to the aforementioned risks), ten-year yields are only expected to rise to roughly 5% over the next five years. Shorter-maturity Treasuries are expected to rise more in yield, thereby flattening the curve to a more normal steepness.

While forward rate expectations may prove to be too muted given the combination of high debt levels, continued high deficits heavily financed by foreign investors, and an end to the quantitative-easing program that supported the vast majority of the Treasury issuance in 2009, the historical record suggests that shortening duration may not be the best means to protect against such an eventuality.[6] In the short term, deleveraging pressures remain and while economic growth has been robust, the level of economic activity is still well below pre-recession levels. Further, it is unclear whether economic growth will continue as the effects of the massive monetary and fiscal stimulus programs begin to wane. It may prove shortsighted to hedge against the risk of rising rates by shortening bond duration

[6] For a fuller discussion of these risks to the Treasury market, please see our November 2009 Market Commentaries *Amid Surging Supply of U.S. Treasuries, Can Demand Hold Up?* and *What Happens When the Fed Becomes Sated?*

and diminishing the protective capabilities of the bond portfolio in the event that economic weakness resumes.[7] Investors that choose to protect against such risks may be better served by investing in hard assets such as commodities and leaving their protection against economic contraction intact.

Conclusion

Institutions should think twice, then think again, before modifying their interest rate exposures based on what they think interest rates might do. First, nominal interest rates are now relatively low precisely because the economy is weak and inflation is perilously close to tipping over into outright deflation.[8] To the extent that an institution regards its fixed income portfolio as a buttress against periods of economic weakness and a source of funds to sustain spending when equity markets are depressed, this role is undermined by moving into short-duration bonds. Second, whence this sudden belief in the ability to forecast interest rates? Institutions might just as well flip a coin as try to predict where rates are headed. Finally, even if one had perfect foresight as to the direction of interest rates, one would also have to predict how the yield curve might twist in response to a shift in Fed policy toward higher rates. In other words, shortening duration only decreases interest rate exposure in a rising rate environment if the yield curve makes a parallel shift. If the yield curve twists with short rates rising more than long rates, investors that shorten duration to reduce interest rate risk could see their short-duration portfolios underperform. ■

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[7] For further discussion on the potential for inflation and deflation, please see our August 2009 report *Asset Allocation in the Current Environment: Now What?!* and our 2010 Outlook Market Commentary *Lower Leverage and Fading Stimulus Present Opportunities and Risk*.

[8] Note, however, that *real* interest rates, which are arguably more important, are not uncommonly low.

Exhibit 1

Target Federal Funds Rate

January 31, 1971 – April 30, 2010

Source: Thomson Datastream.

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Exhibit 2

Bond Returns During Periods When Target Fed Funds Rates Increased by 100 bps or More

Period of ≥100 bps Target Fed Rate Increase			Months	Target Fed Funds Rate Change (bps)	T-Bills	5-Year Govt Bonds	10-Year Govt Bonds	20-Year + Govt Bonds	Barclays Capital Intermediate Govt/Credit Bond Index	Barclays Capital Govt/Credit Bond Index
July 1, 1971	to	October 31, 1971	4	150	1.60	6.89	8.57	NA	NA	NA
March 1, 1972	to	June 30, 1974	28	700	16.35	4.77	4.27	NA	NA	NA
August 1, 1977	to	March 31, 1980	32	1,175	24.97	-0.43	-8.66	NA	4.14	-4.29
October 1, 1980	to	February 28, 1981	5	650	5.70	-1.46	-3.54	-3.20	0.87	-0.15
May 1, 1981	to	June 30, 1981	2	350	2.64	3.09	3.68	4.49	2.67	3.34
February 1, 1982	to	April 30, 1982	3	200	3.49	4.83	5.06	7.46	4.80	5.86
March 1, 1984	to	August 31, 1984	6	344	5.40	2.66	2.30	2.40	3.35	3.24
March 1, 1988	to	May 31, 1989	15	331	9.80	7.18	8.64	9.23	8.15	8.78
February 1, 1994	to	June 30, 1995	17	300	7.03	5.75	6.51	6.46	6.30	6.27
June 1, 1999	to	December 31, 2000	19	175	9.32	12.77	14.31	16.63	11.27	11.65
June 1, 2004	to	August 31, 2007	39	425	12.89	13.19	16.96	24.73	13.37	15.01

Sources: Barclays Capital, Global Financial Data, Inc., and Thomson Datastream.

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Exhibit 3

Bond Returns During Periods (+/- 3 Months) When Target Fed Funds Rates Increased by 100 bps or More

Period of ≥100 bps Target Fed Rate Increase			Months	Target Fed Funds Rate Change (bps)	T-Bills	5-Year Govt Bonds	10-Year Govt Bonds	20-Year + Govt Bonds	Barclays Capital Intermediate Govt/Credit Bond Index	Barclays Capital Govt/Credit Bond Index
April 1, 1971	to	January 31, 1972	10	50	3.77	2.15	0.98	NA	NA	NA
December 1, 1971	to	September 30, 1974	34	450	19.79	10.51	4.86	NA	NA	NA
May 1, 1977	to	June 30, 1980	38	650	31.55	19.27	11.26	NA	21.33	15.27
July 1, 1980	to	May 31, 1981	11	775	11.42	-4.98	-8.01	-10.03	-0.77	-4.24
February 1, 1981	to	September 30, 1981	8	50	10.58	-2.51	-7.17	-11.57	0.99	-2.71
November 1, 1981	to	July 31, 1982	9	-200	10.88	15.17	16.72	16.99	14.76	15.93
December 1, 1983	to	November 30, 1984	12	100	11.13	13.52	13.59	12.49	13.18	13.53
December 1, 1987	to	August 31, 1989	21	219	14.10	16.82	22.24	26.55	17.04	19.71
November 1, 1993	to	September 30, 1995	23	275	9.47	7.82	7.89	9.15	9.15	9.17
March 1, 1999	to	March 31, 2001	25	25	12.26	15.67	16.01	15.43	15.36	14.88
March 1, 2004	to	November 30, 2007	45	350	14.48	15.40	18.56	26.89	14.76	15.98

Sources: Barclays Capital, Global Financial Data, Inc., and Thomson Datastream.
Note: The table takes the 11 periods when the U.S. Federal Reserve increased rates by 100 basis points or more and extends the period to include the three months preceding and the three months following the rate increase.
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Exhibit 4

Beginning and Ending Yield Curves During Periods of Increasing Fed Funds Rate

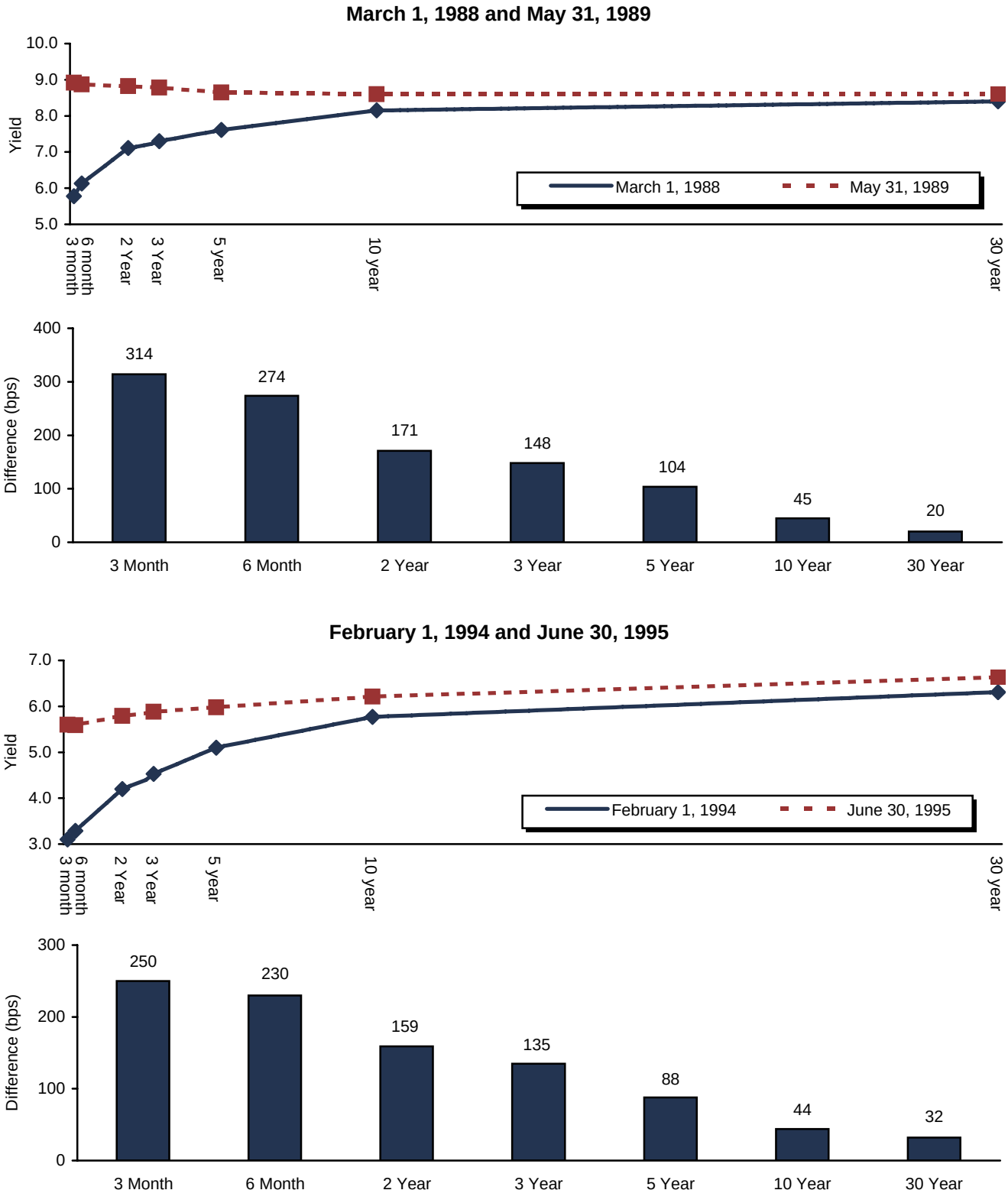
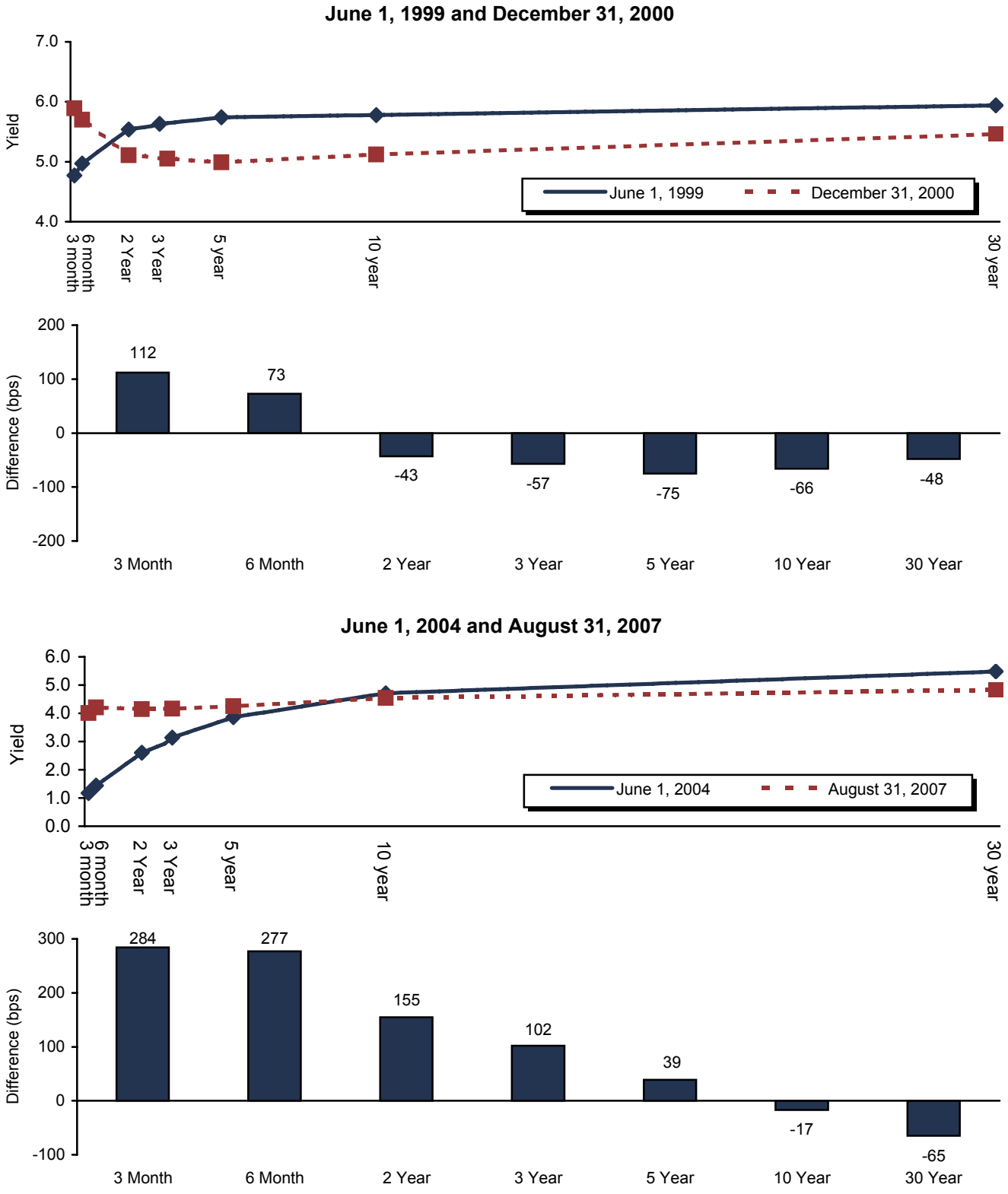


Exhibit 4 (continued)

Beginning and Ending Yield Curves During Periods of Increasing Fed Funds Rate



Source: Thomson Datastream.

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