

WEEKLY MARKET MONITOR NOVEMBER 19, 2007

BRETT HAMMOND
CHIEF INVESTMENT
STRATEGIST

LEO KAMP
CHIEF ECONOMIST

DOUGLAS FORE
DIRECTOR OF PORTFOLIO
ANALYTICS

MARKET VOLATILITY AND THE CONTAGION EFFECT

This week we will look at the channels through which contagion occurs, as well as some of the consequences of contagion:

- Asset prices and the contagion effect
- Exchange rates and the contagion effect
- The importance of portfolio constraints.

Lately much attention has been given to the various exposures of financial institutions to securities backed by sub-prime mortgages and other possible dodgy assets. This attention has, by no means, been limited to financial institutions domiciled in the U.S. The solvency shock to these assets began earlier this year as market participants began to recalculate their estimates of the probable discounted value of the cash flows of these securities. This solvency shock was destined to be a global phenomenon and an occurrence of the contagion effect for several reasons. The first and most obvious reason for the global impact of the U.S. sub-prime meltdown is the reach and scope of financial globalization. As financial markets worldwide have become



increasingly linked, it has become progressively easier for assets originating in one market to be sold to and held by institutions in other markets. As a consequence of this structured securities backed by U.S. sub-prime mortgages were, by the onset of market turmoil earlier this year, held in portfolios of institutions in all corners of the globe. Hence when the market values of these securities collapsed, institutions from San Francisco to Switzerland realized losses. Indeed, the first institutions to fail as a result of losses in these securities were in Germany.

A characteristic feature of periods of contagion is rising risk aversion. As market participants become more averse to risk, the desire to hold risky assets in general and suddenly — and negatively — revalued assets in particular falls. This in turn leads to additional selling of the riskiest assets. Assets, which have been suddenly revalued downward, are particularly susceptible to increased selling pressure. With tens of billions of dollars of securities backed by sub-prime mortgages hastily — if belatedly — downgraded by the credit rating agencies the conditions for a sell-off of these assets were in effect. The on-going revaluation of these assets is merely the latest act in a market play which has been seen many times in the past — and which will one day be seen again.

Exchange rates function as another channel of transmission for contagion effects. In a world of floating exchange rates, currency movements can serve to amplify the contagion shock transmitted from one market to global markets. The latest episode of contagion illustrates this well. The current period of sustained and pronounced weakness in the U.S. dollar is serving to amplify the contagion effect. The dollar is at decade-long lows versus the currency of our major trading partner, Canada, as well as decade-long lows vis-à-vis the British pound and at historic lows vis-à-vis the euro. The dollar is similarly at levels not seen for decades, if ever, vis-à-vis the currencies of other trading partners such as Australia (the list goes on). Indeed the dollar has depreciated against any major and most minor currencies where the exchange rate has not been fixed by a commitment to a dollar peg. This depreciation of the dollar serves to amplify the contagion effect because the value of a portfolio of securities backed by sub-prime mortgages is further reduced when translated into ever less valuable dollars. Hence, a foreign holder of a portfolio of securities

backed by sub-prime mortgages has suffered an initial hit to the portfolio's value as the securities cash flows were revalued and then suffered a second hit to the portfolio's value from the (unhedged) depreciation of the dollar. This is an example of how exchange rates can function to amplify contagion.

Another channel for the transmission of contagion effects is through portfolio constraints. There is more than one way in which portfolio constraints can function as a transmission mechanism for contagion. For example, institutional investors typically have limits on their holdings of various types of securities. These limits can be proscribed by the prospectus, as might be the case for an investment grade bond fund where the prospectus lists the upper bound on the fund's holdings of below-investment grade (BIG) bonds. Or, the limits might be imposed by regulation, as in the case of an insurance company general account where the upper limit on holdings of BIG bonds is set by regulation.

Portfolio constraints such as these probably contributed to the contagion effects set in motion by the sub-prime meltdown. As the revaluation of securities backed by sub-prime mortgages proceeded, the securities became valued at prices associated with BIG bonds. This in turn led to portfolio constraints being reached — or breached — for institutional investors concerning the percentage of BIG bonds they could hold in their portfolios. Then the credit rating agencies began to downgrade tens of billions of dollars of these securities from investment grade to BIG, a sign that these securities were likely to remain at BIG levels for an extended period. Credit rating agencies are lagging indicators of credit quality, typically downgrading securities after the market has already marked them down. Action by the credit rating agencies generated further selling pressure in global markets, as institutional investors with binding portfolio constraints sold these securities out of their portfolios, thus adding to downward pressure on prices. Since many institutional investors across global markets have these types of portfolio constraints, the impact of the portfolio constraints was to amplify the contagion effect.

Market Monitor is prepared by TIAA-CREF Asset Management and represents the views of TIAA-CREF's Investment Strategy and Client Solutions Group. These views may change in response to changing economic and market conditions. Past performance is not indicative of future results. The material is for informational purposes only and should not be regarded as a recommendation or an offer to buy or sell any product or service to which this information may relate.

TIAA-CREF is a national financial services organization and the leading provider of retirement services in the academic, research, medical and cultural fields with over \$400 billion in combined assets under management. Further information can be found at www.tiaa-cref.org.

TIAA-CREF Asset Management is a division of Teachers Advisors, Inc., a registered investment advisor and wholly owned subsidiary of Teachers Insurance and Annuity Association (TIAA). TIAA-CREF® personnel in its investment management area provide investment advice and portfolio management services through the following entities: Teachers Advisors, Inc., TIAA-CREF Investment Management, LLC, and Teachers Insurance and Annuity Association® (TIAA®). TIAA-CREF Individual & Institutional Services, LLC, distributes securities, member NASD/SIPC. TIAA, TIAA-CREF, Teachers Insurance and Annuity Association, TIAA-CREF Asset Management and FINANCIAL SERVICES FOR THE GREATER GOOD are registered trademarks of Teachers Insurance and Annuity Association.

Brett Hammond, Leo Kamp and Douglas Fore are available to comment on economic data. If you wish to speak with them, please contact Chad Peterson, Media Relations, 212-916-4808 or email cpeterson@tiaa-cref.org.

C40246