

CO-MOVEMENTS OF NAFTA STOCK MARKETS

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This paper studies the co-movements of the U.S., Canadian, and Mexican weekly stock market index returns with the rolling correlation analysis and Granger causality techniques during the June 1995-May 2005 period. The rolling correlation analysis results show that the correlation of the U.S. stock market returns with the Canadian and Mexican stock market returns has been increasing and the portfolio diversification benefit to U.S. global investors of investing in the other two NAFTA countries has been diminishing. The Granger causality test results indicate that the past returns of the Canadian stock market can be used to predict the future returns of the Mexican stock market. The weak-form market efficiency test results show that the returns of all three NAFTA stock markets follow a random walk, i.e., the past returns of none of the three stock markets can predict its own future returns.

INTRODUCTION

The co-movements of the world's national stock markets have long been a popular research topic in finance (see, e.g., Makridakis and Wheelwright, 1974, Joy et al., 1976, Hilliard, 1979, Maldonado and Saunders, 1981, Philippatos et al., 1983). Low correlation between national stock markets is often presented as evidence in support of the benefit of global portfolio diversification (see, e.g., Levy and Sarnat, 1970, Solnik, 1974, Lessard, 1976, Watson, 1978, Meric and Meric, 1989).

Although the co-movements of the world's major national stock markets have been studied extensively, the co-movements of stock markets in a common market or free trade area have not received sufficient attention. Meric and Meric (1997) use principal components analysis to show that correlation between the EU stock markets has been increasing and the portfolio diversi-

fication benefit of investing in these stock markets has been decreasing. Meric et al. (2000) use VAR analysis and conclude that there were close linkages between the ASEAN stock markets during the 1997-1998 emerging markets crisis. In a recent study, Aggarwal and Kyaw (2005) use unit root and co-integration tests to demonstrate that the U.S., Canadian, and Mexican stock markets are more integrated during the 1994-2001 NAFTA period compared with the 1988-1993 pre-NAFTA period. Our study provides additional empirical evidence on the co-movements of the NAFTA stock markets by using rolling correlation analysis and Granger causality tests during the June 1995-May 2005 period.

NAFTA

The North American Free Trade Agreement (NAFTA) was signed on December 17, 1992. This agreement between the U.S., Canada, and Mexico created the world's biggest single market by eliminating all trade and investment barriers among the three countries.

The NAFTA had to be carefully crafted to be compatible with other agreements, particularly the General Agreement on Tariffs and Trade (GATT), to which all three members were included as parties (NAFTA, Article 101). In addition, the U.S., Canada, and Mexico each had their own domestic interests to reconcile (Kaplan, 1996). In the U.S., for example, NAFTA opponents, particularly from environmental groups and organized labor, raised significant concerns about whether the U.S. should participate. In the U.S. alone, it required extensive consultations with Congress, public hearings, private sector input, and formal reports from a number of advisory committees consisting of experts from specific areas, including industry, agri-

culture, labor, defense, investments, commodities, and others, before the Agreement could be approved and implemented. In 1993, at the insistence of the U.S., the environmental and labor side agreements to the NAFTA were signed. These agreements were designed to provide environmental standards and worker protection (Kaplan, 1996). However, the side agreements contained no legislative force and have generally been criticized as being mostly symbolic (Stanford, 2003).

NAFTA took effect on January 1, 1994. It immediately lifted tariffs on the majority of goods produced by the three nations. It also provides for gradual elimination, over the course of 15 years, of most remaining barriers to cross-border investment and to the movement of goods and services between the territories of the three countries. Unlike the EU, the NAFTA does not create full economic integration or adopt a common external trade policy among its members.

In addition to elimination of trade barriers between member nations, the stated objectives of NAFTA include promotion of conditions of fair competition in the free trade area, substantially increasing investment opportunities in the territories of the parties, providing adequate and effective protection and enforcement of intellectual property rights, and establishing “a framework for further trilateral, regional and multinational cooperation to expand and enhance the benefits” of the agreement (NAFTA, Article 102).

Annual trade between the U.S., Canada, and Mexico doubled to over \$600 billion in the 10 years following the initial implementation of NAFTA (Murphy, 2004). Nevertheless, it has also been observed that continental free trade has not had any significant impact on real economic growth rates on the continent (Stanford, 2003).

THE ECONOMIES AND TRADE RELATIONS OF NAFTA COUNTRIES

All of the NAFTA countries have a free market economy. The U.S. has the largest economy of the three consisting of private companies with modern technological advances. Canada has a market economy similar to the U.S. Mexico has the least developed economy of the NAFTA members. It contains both outdated and modern industries with an increasing emphasis on private enterprise. Mexico continues to work on building an adequate infrastructure to help modernize the economy.

Table 1 highlights some of the similarities and differences in the economies of the three NAFTA members. The U.S.’s GDP is over 10 times greater than both Canada and Mexico. Mexico has the highest annual growth rate in GDP. The GDP is slightly higher for Canada but Mexico has a higher growth rate. The GDP per capita is \$43,800 in the U.S. followed by \$35,700 in Canada. Mexico’s GDP per capita is significantly lower at \$10,700. The makeup of the GDP per country among agricul-

ture, industry, and services are similar across countries although the U.S. has a lower industrial sector and higher services sector relative to the other two economies. Mexico has the highest inflation rate. Mexico also has the lowest unemployment rate although it is reported that a large percentage of workers in Mexico are underemployed (Carlos, 2001).

Table 1
*Descriptive Statistics for Selected Economic Characteristics of Canada, Mexico, and the U.S.**

Economic Characteristics		Countries		
		Canada	Mexico	United States
GDP (in trillions of U.S. dollars)		1.181	1.149	13.060
Annual GDP Growth Rate		2.8%	4.8%	2.9%
Population**		33,390,141	108,700,891	301,139,947
Population Growth Rate**		0.87%	1.15%	0.89%
GDP Per Capita (in U.S. dollars)		35,700	10,700	43,800
GDP Composition	Agriculture	2.3%	3.9%	0.9%
	Industry	29.2%	25.7%	20.4%
	Services	68.5%	70.5%	78.6%
Inflation Rate		2.0%	3.4%	2.5%
Unemployment Rate		6.4%	3.2%	4.8%
Exports (in billions of U.S. dollars)		405.0	248.8	1,024.0
Exports as a % of GDP		34.3%	21.7%	7.8%
Major Export Partners***		U.S. (82.3%) U.K. (2.2%) Japan (2.1%)	U.S. (77.4%) Canada (5.9%) Bermuda (1.5%)	Canada (22.2%) Mexico (12.9%) Japan (5.8%) China (5.3%) U.K. (4.4%)
Imports (in billions of U.S. dollars)		353.2	253.1	1,869.0
Imports as a % of GDP		29.9%	22.0%	14.3%
Major Import Partners****		U.S. (55.1%) China (8.7%) Mexico (4.0%)	U.S. (61.5%) Japan (4.3%) China (4.0%)	Canada (16.0%) China (15.9%) Mexico (10.4%) Japan (7.9%) Germany (4.8%)

* All figures are 2006 estimates unless otherwise noted.
Data source: www.cia.gov/cia/publications/factbook/index.html
** July 2007 estimate.
*** The figure in parentheses is a percentage of total exports.
**** The figure in parentheses is a percentage of total imports.

The U.S. is the largest purchaser of both Canadian and Mexican exports. The U.S. is also the major import partner for both countries. Canada also imports from Mexico while Mexico has an insignificant amount of imports from Canada. Perhaps the most striking difference among the three countries is the huge trade deficit of the U.S. relative to the other two countries. The U.S. shows a trade deficit of approximately \$845 billion while Mexico reports a trade deficit of only \$4.3 billion. Canada is the only country with a trade surplus of approximately \$51.8 billion.

DATA AND METHODOLOGY

We use the Morgan Stanley Capital International (MSCI) weekly U.S.-dollar stock market indexes in the study. The index data are drawn from the Datastream database for the June 1995-May 2005 period. The weekly index returns are computed as the natural log difference in the indexes, $\ln(I_{it}/I_{it-1})$. Rolling correlation analysis is used to study the time-varying correlation

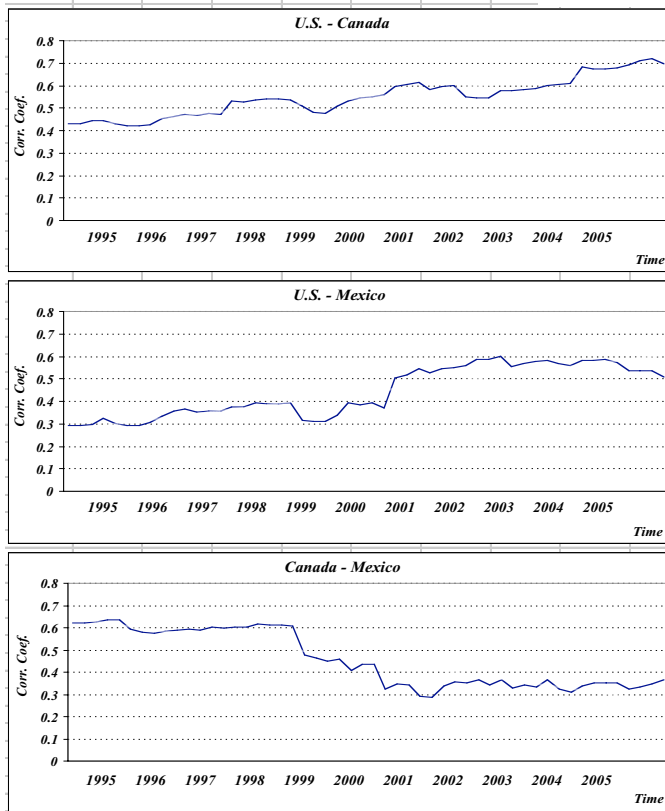
patterns between pairs of NAFTA stock markets and the portfolio diversification implications of the long-run trends. The Granger (1969) causality test is used to study the predictability and the weak-form efficiency of each stock market's weekly index returns.

ROLLING CORRELATION ANALYSIS

For the global investor, the expected portfolio diversification benefit of investing in different countries depends on the expected correlation between the stock markets of the countries. However, recent studies demonstrate that correlation between global stock markets is quite volatile over time (see: Solnik et al., 1996, Meric et al., 2002). The past volatility of correlation coefficients between global stock markets can give an idea about the degree of uncertainty involved regarding the expected correlation coefficients. We use the rolling correlation analysis technique to study the time-varying correlation between the U.S., Canadian, and Mexican weekly stock market index returns during the June 1995-May 2005 period.

Yearly rolling correlation coefficients between the weekly index returns of pairs of stock markets are computed by rolling the sample period ahead one week at a time starting with the first year. Specifically, the latest weekly return observation is added while the earliest observation is deleted. The time-varying rolling correlation graphs for the June 1995-May 2005 period are presented in Figure 1. The linear trend line fitted to each graph shows the long-run correlation trend between the two stock markets.

Figure 1
Rolling Correlation Between the NAFTA Stock Markets: June 1995-May 2005



The rolling correlation graph for the U.S. and Canadian stock markets indicates that the correlation between these two stock markets has a sharp upward trend. The correlation coefficient between the two markets was about 0.4 in 1995. It increased up to about 0.7 in 2005. The correlation between the U.S. and Mexican stock markets also has a sharp upward trend. The correlation coefficient between the two stock markets was about 0.3 in 1995. It increased up to about 0.5 in 2005. Low correlation between national stock markets is often presented as evidence in support of the benefit of global portfolio diversification. These results indicate that the correlation between the U.S. stock market and the Canadian and Mexican stock markets is increasing and the portfolio diversification benefit to U.S. investors with the other two NAFTA stock markets is decreasing over time.

The rolling correlation graph for the Canadian and Mexican stock markets indicates that the correlation between these two stock markets has a downward trend, i.e., the portfolio diversification benefit to Canadian investors into the Mexican stock market and Mexican investors into the Canadian stock market has been increasing. The correlation coefficient between the Canadian and Mexican stock markets was about 0.6 from 1995 to 1998 during the peso and emerging markets crises. It fell sharply to 0.3 during the 1999 bull market and the 2000-2001 bear market. It has been steady at about 0.35 level since 2002.

The average rolling correlation coefficients and the standard deviations of the correlation coefficients during the June 1995-May 2005 period are presented in Table 2. The statistics in the table indicate that the highest average rolling correlation coefficient is between the U.S. and Canadian stock markets (0.5457) and the lowest average rolling correlation coefficient is between the U.S. and Mexican stock markets (0.4398). The standard deviation figures in the table indicate that the most volatile correlation coefficient is between the Canadian and Mexican stock markets (0.1257) and the least volatile correlation coefficient is between the U.S. and Canadian stock markets (0.0841).

Table 2
Average Correlation Between the NAFTA Stock Markets and the Volatility of the Correlation Coefficients: June 1995-May 2005

Stock Markets	Average Correlation Coefficient	Standard Deviation
U.S. - Canada	0.5457	0.0841
U.S. - Mexico	0.4398	0.1118
Canada - Mexico	0.4529	0.1257

GRANGER CAUSALITY TESTS

An independent variable *X* Granger-causes changes in dependent variable *Y*, if *Y* can be better forecasted with past values of *X* and *Y*, than just with past values of *Y* alone. The causality in the Granger (1969) sense does not imply a cause and effect relationship, but one of predictability. In several recent studies, the Granger-causality technique is used to determine if some national stock market index returns can be used to predict the future returns of other national stock market indexes (see, e.g., Ratner and Leal, 1996, Meric et al., 2002).

We use the VAR methodology and the Granger causality test to study the linkages between the U.S., Canadian, and Mexican stock markets during the June 1995-May 2005 period. A detailed description of the VAR methodology and the Granger causality test is available in Enders (1995). The optimal lag-length (see: Sims, 1980) is three periods (three weeks) in the VAR system used in the analysis and there are 9 lags in each of the three VAR equations (a total of 27 coefficients). To conserve space, t-statistics for the individual lags are not given. The results of the Granger causality tests for the joint hypothesis of zero coefficients on all three lags for each variable are presented in Table 3.

Table 3
Granger Causality Tests

Stock Market	F Statistic	Significance Level
PANEL A: Dependent Variable: U.S. Stock Market		
U.S.	0.4409	0.7239
Canada	0.3533	0.7868
Mexico	1.2574	0.2884
PANEL B: Dependent Variable: Canadian Stock Market		
U.S.	0.5486	0.6493
Canada	1.7148	0.1630
Mexico	0.2774	0.8417
PANEL C: Dependent Variable: Mexican Stock Market		
U.S.	1.4951	0.2150
Canada	2.8501	0.0369
Mexico	0.0349	0.9912

In Panel A, the U.S. stock market is the dependent variable. The F-statistic for the U.S. stock market indicates that it is weak-form efficient, i.e., the past returns of the U.S. stock market cannot be used to predict its future returns. The F-statistics for the Canadian and Mexican stock markets show that the past returns of these two NAFTA stock markets cannot predict the future returns of the U.S. stock market.

The Canadian stock market is the dependent variable in Panel B. The F-statistic for the Canadian stock market indicates that it is also weak-form efficient, i.e., the past returns of the Canadian stock market cannot be used to predict its future returns. The F-statistics for the U.S. and Mexican stock markets show that the past returns of these two NAFTA stock markets cannot predict the future returns of the Canadian stock market.

The Mexican stock market is the dependent variable in Panel C. The F-statistic for the Mexican stock market shows that it is also weak-form efficient, i.e., the past returns of the Mexican stock market cannot be used to predict its future returns. The F-statistic for the U.S. stock market indicates that the past returns of the U.S. stock market cannot predict the future returns of the Mexican stock market. However, the F-statistic for the Canadian stock market is significant at the conventional 5-percent level, i.e., the past returns of the Canadian stock

market can be used to predict the future returns of the Mexican stock market.

SUMMARY AND CONCLUSIONS

In this paper, we have studied the co-movements of the U.S., Canadian, and Mexican stock market weekly index returns with data for the June 1995-May 2005 period. The rolling correlation analysis results show that the correlation of the U.S. stock market with the Canadian and Mexican stock markets is increasing over time. It implies that the portfolio diversification benefit to U.S. global investors with these two NAFTA stock markets has been decreasing. The correlation coefficient between the Canadian and Mexican stock markets decreased sharply from the 1995-1998 period to the 2002-2005 period. This implies that the portfolio diversification benefit of investing in each other's stock markets has increased for Canadian and Mexican investors.

Our Granger causality test results with weekly returns data indicate that all three NAFTA stock markets are weak-form efficient, i.e., the past returns of none of the three stock markets can be used to predict its own future returns. Neither the past returns of the U.S. stock market can predict the future returns of the Canadian and Mexican stock markets nor the past returns of the Canadian and Mexican stock markets can predict the future returns of the U.S. stock market. The past returns of the Mexican stock market cannot predict the future returns of the Canadian stock market either. However, the past returns of the Canadian stock market can be used to predict the future returns of the Mexican stock market.

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FINDING THE “RIGHT” COMBINATIONS OF DISPOSITIONAL AFFECTIVITY IN WHITE-COLLAR WORKERS

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Employers continue to be interested in the degree to which their employees generally feel more positive or negative affect and the impact of such dispositional affectivity on work attitudes. Affect is a generic term used to describe a broad spectrum of feelings, emotions, and moods that individuals may experience. Dispositional affectivity (DA) is a construct that refers to the general tendency for individuals to experience positive affect (PA) and negative affect (NA) across situations (Diener & Emmons, 1985; Watson & Tellegen, 1985). Such affective tendencies have emerged as promising traits to explore, since work attitudes involve affective reactions to one's work (Locke, 1976). Academics are also interested in this topic as evidenced by the fact that the literature concerning emotions in the workplace has literally exploded in the last five years. Specifically, researchers continue to be curious about the role of DA as it relates to a variety of workplace variables. Past empirical studies have investigated a variety of work attitudes related to DA, with most studies examining a few workplace attitudinal variables within a study. In the current study, we investigate the impact of DA on a wide spectrum of workplace attitudes and behaviors within a single sample. Much of the research in the area of DA has largely focused on negative affectivity (Fredrickson & Losada, 2005; Hochwarter et al, 2003). The positive psychology movement, first advocated by Seligman (2000), has shifted the focus to positive affectivity and its advantage for promoting a healthy organizational environment. Hence, there has been a shift in the literature on DA to a greater emphasis on evaluating positive affect and its statistical relationships with a variety of variables. This paper looks at both positive and negative affect, as well as combinations of both types of affect. Unlike previous research, we examine various combinations of positive and negative affect and their impact on workplace attitudes and behaviors.

The purpose of the present study is to take an initial step toward filling a void in the literature by examining a variety of attitudinal and behavioral issues as they relate to DA. Current research has shown that positive and negative affect are independent dimensions of DA (Berry & Hansen, 1996; Diener & Emmons, 1985). Therefore, a second purpose of the current study, is to extend previous research by examining different

combinations of negative and positive affect and their impact on attitudinal and behavioral variables. We begin by reviewing the pertinent literature for DA and each of the individual difference variables. Next, we consider the conceptual linkages between these variables, as well as their effects on work related attitudes and behaviors such as job satisfaction, organizational commitment, and turnover intentions. Drawing on this discussion, we use analysis of variance to test a set of hypotheses regarding the relationships between DA and certain work attitudes and behaviors. We examine these models using a sample of 245 professional employees of a Midwestern manufacturing company. We conclude with a discussion of the results and their implications for management research and practice.

LITERATURE REVIEW

Dispositional Affectivity and Work-Related Attitudes

Social scientists have long been intrigued by individual differences in people's interpretations of their own emotional experiences (Berry & Hansen, 1996). In particular, research shows that some individuals report experiencing increased amounts of positive emotions relative to others. The phenomenon is referred to as positive affect, and these persons are usually self-described as joyful, exhilarated, excited, and enthusiastic. Those low in PA have been described as listless, lethargic, drowsy, apathetic, and dull (Cropanzano et al, 1993; Watson & Tellegen, 1985). In contrast, other individuals describe themselves as experiencing greater amounts of negative feelings than others, and are often referred to as high-negative-affect individuals (Berry & Hansen, 1996; Cropanzano et al., 1993). Such individuals report being afraid, anxious, angry, and tend to be nervous and tense. Those low in NA tend to view conditions as less upsetting and stressful than high NA individuals (Chiu & Francesco, 2003). Interestingly, the research on dispositional affectivity has shown that there are two general dimensions of affective responding: trait-positive affect (PA) and trait-negative affect (NA). These dimensions do not appear to represent opposite ends of a continuum; but rather they are independent of one another (Berry & Hansen, 1996; Diener & Emmons, 1985).

That is, it is possible for an individual to be high on both, low on both, or high on one but not the other (George, 1992; Watson & Tellegen, 1985). An individual who rates high on both dimensions would be characterized as quite emotional, and would experience fluctuating moods in response to environmental stimuli (Diener & Emmons, 1985). In sharp contrast is the individual that rates low on both who would likely display little affect; i.e. the person would likely be unemotional and unresponsive (Cropanzano et al., 1993).

Several researchers have documented the significant relationship between DA and work attitudes. For example, an inverse relationship has been found to exist between NA and job satisfaction (Levin & Stokes, 1989; Staw, Bell, & Clausen, 1986). Other researchers have documented that NA may be negatively correlated with not only job satisfaction, but also organizational commitment, and positively correlated with turnover intentions; the exact opposite pattern of correlations has been obtained for PA (Cropanzano et al., 1993). One explanation for these relationships is that work attitudes are primarily a function of how an individual affectively responds to his or her work environment, and are therefore influenced by one's underlying affective disposition. Consequently, high PA individuals are likely to exhibit extremely positive responses to their work environments which are reflected in their work attitudes, while extreme negative responses are usually seen in high NA persons (George, 1992).

Research notes the tendency of individuals to be dispositionally inclined to form positive or negative attitudes about their work (Cropanzano et al., 1993). Interestingly, Arvey, Bouchard, Segal, and Abramson (1989) demonstrated that approximately 30% of the observed variance in general job satisfaction was attributable to genetic factors. Longitudinal studies indicate that scores on job satisfaction measures remain correlated over time, and that this relationship holds even when individuals change employers or occupations (Staw et al., 1986; Staw & Ross, 1985). These findings do not mean that work attitudes are entirely stable, or that the job context is unimportant; in actuality, work attitudes do indeed fluctuate over time. Instead, these longitudinal studies are consistent with the view that while work attitudes vary as a function of changes in the work setting (Cropanzano & James, 1990; Newton & Keenan, 1991), the rank ordering of individuals' attitudes remains relatively stable, and that such stability can be attributed to certain underlying personality dispositions (George, 1992) such as positive or negative affectivity (Cropanzano et al., 1993).

Recently, research by Fredrickson (1998, 2001) has proposed a "broaden-and-build" theory of positive affect which contends that individuals who experience positive emotions and generally experience "chronic" positive affectivity are able to adapt and be flexible to workplace changes. Further, it has been proposed that positive affect individuals possess a wider range of thoughts than individuals who experience negative affectivity on a regular basis. Recent empirical support has shown how positive affect influences behavioral responses (Fredrickson & Branigan, 2005), and psychological growth (Fredrickson, Tugade, Waugh & Larkin, 2003). Indeed, Fredrickson and Losada (2005) contend that PA individuals experience a broader range of thoughts that are proactive in nature as opposed to

thoughts that are single-mindedly stagnant, which in essence broadens their behavioral repertoire. Based on this reasoning, Fredrickson (2001) hypothesized that positive affectivity may lead to an increase in psychological resources over time.

In a recent study by Fisher (2002), it was found that positive affectivity was predictive of affective commitment and helping behaviors. Interestingly, in the same study, intention to leave was predicted by work attitudes rather than affective reactions. Further, research has indicated that positive affectivity is characteristic of employees that are successful at dealing with organizational stressors (Isen et al, 1987; Fredrickson et al 2003; Fredrickson & Branigan, 2005; Watson, Clark, & Tellegen, 1988). Moreover, in a study by Chiu and Francesco (2003) it was found that DA predicted turnover intentions. Based on the research outlined above, we hypothesized the following:

Hypothesis one: "Ideal" combinations of positive and negative affect levels (i.e., high positive affect scores and low negative affect scores) will result in significantly higher levels of organizational commitment than will the "worst" combinations of positive and negative affect levels (i.e., low positive affect scores and high negative affect scores).

Hypothesis two: "Ideal" combinations of positive and negative affect levels (i.e., high positive affect scores and low negative affect scores) will result in significantly reduced levels of turnover intentions than will the "worst" combinations of positive and negative affect levels (i.e., low positive affect scores and high negative affect scores).

Most measures of job satisfaction include questions containing both positive and negatively worded items, for example, "my job makes me content" and "my job is disagreeable" from the Job in General scale by Ironson, Smith, Brannick, Gibson, and Paul (1989). Fisher (2002) contends that items such as these most likely trigger recall of both positive and negative emotions experienced in the workplace. Indeed, Price (2001) notes that PA and NA may impact job satisfaction through selective perception. That is, PA individuals may selectively perceive positive aspects of the job rather than the negative, resulting in greater job satisfaction. Other researchers have confirmed a similar relationship between dispositional affectivity and job satisfaction (Judge, 1993; Agho et al, 1992; Levin & Stokes, 1989; Cropanzano et al, 1993). Hence, we hypothesized the following with regard to job satisfaction:

Hypothesis three: "Ideal" combinations of positive and negative affect levels (i.e., high positive affect scores and low negative affect scores) will result in significantly higher levels of job satisfaction than will the "worst" combinations of positive and negative affect levels (i.e., low positive affect scores and high negative affect scores).

METHODS

Subjects

It was determined that the sample for this study should be drawn from a firm engaged in manufacturing operations and white collar work. This firm had approximately 400 employees

engaged in professional work. Therefore, the population consisted of 400 hourly employees of a manufacturing firm located in the Midwestern United States. The final sample size resulted in 245 white collar workers.

Measures

In the construction of the survey, a variety of standardized instruments were used to measure the variables included in the research model. Descriptions of these measures and the evidence of reliability and validity are provided below.

Dispositional affectivity. Positive and negative affect were measured using the Positive and Negative Affect Schedule (PANAS) developed by Watson, Clark, and Tellegen (1988). The PANAS includes a list of 20 mood-relevant adjectives, of which 10 indicate positive (e.g., active, enthusiastic) and 10 indicate negative (e.g., angry, afraid) mood states. Respondents are instructed to “indicate to what extent you generally feel this way, that is, how you feel on the average.” Extensive validity evidence is provided by Watson et al. (1988), Watson, Clark, and Carey (1988), and Watson (1988a; 1988b). Alpha coefficients of .88 and .85 for the PA and NA scales, respectively, were obtained in the current study.

Turnover intentions. A measure of intent to leave developed by O’Reilly, Chatman, and Caldwell (1991) was employed in this study. This scale is composed of four 7-point Likert-type questions: (1) “To what extent would you prefer another more ideal job than the one you now work in?” (2) “To what extent have you thought seriously about changing organizations since beginning to work here?” (3) “How long do you intend to remain with this organization?” (4) “If you have your own way, will you be working for this organization three years from now?” Each employee was asked to respond to these questions. A coefficient alpha of .85 for this scale was obtained in this research.

Organizational commitment. In a review of the organizational commitment literature, Meyer and Allen (1991) identified *affective*, *continuance*, and *normative* commitment as three distinctive components of commitment. Affective commitment refers to an affective attachment to the organization. Continuance commitment involves a perceived cost of leaving the organization. Normative commitment stems from a perceived obligation to remain with the organization. Based on the Organizational Commitment Questionnaire developed by Mowday et al. (1982), Allen and Meyer (1990) developed and validated separate measures for each component. Given the focus of the current study on dispositional affectivity, we included Allen and Meyer’s 8-item Affective Commitment Scale (ACS) as our measure of organizational commitment. Coefficient alphas for the ACS of .87 and .91 were obtained by Allen and Meyer, and in the present study, respectively.

Job satisfaction. Overall job satisfaction was measured using the 18-item “Job in General” (JIG) scale (Ironson, Smith, Brannick, Gibson, & Paul, 1989) from the revised version of the Job Descriptive Index (JDI) (Smith, Kendall, & Hulin, 1969). Validation evidence for the JIG is provided by Ironson et al. (1989); coefficient alphas for the JIG scale range from .91 to .95. In the present study, an alpha coefficient of .89 was obtained. Additionally, a single item was used to assess job satisfaction.

Subjects were asked to respond to the following question using a 7-point likert scale: “All in all, how satisfied are you with your current job?”

Procedure

The administration of the instrument packets was conducted in cooperation with contact members of the targeted organization. Specifically, data collection was designed to reach all professional employees at the participating manufacturing firm. The method used was a “drop-off” method whereby contact persons in the firm distributed the survey packets to all hourly employees in their work units. Respondents completed the instruments during normal work hours, and returned them directly to the researchers using a pre-addressed and pre-paid postage packet.

Of the survey packets distributed, 245 usable surveys were completed and returned for a response rate of 61 percent. Table 1 provides a summary of the demographic attributes of the subjects.

**TABLE 1
DEMOGRAPHIC ATTRIBUTES**

Education	
Less than High School	2-8.0%
High School	30-12.2%
Some College	68-27.6%
Associates	10-4.1%
Bachelor’s	112-45.6%
Graduate	18-7.3%
Other	6-2.4%
Marital	
Single	34-13.8%
Married	185-74.9%
Widowed	5-2.0%
Divorced	23-9.3%
Average Years Worked in Company	
	7 yrs. 10 mo.
Average Years Worked in Job	
	5 yrs. 5 mo.

Analysis

Since the research was designed to compare the mean levels of organizational commitment, job satisfaction, and turnover intentions of workers, t-tests and analysis of variance were used to investigate the relationships between dispositional affectivity and the outcome variables. A separate t-test or analysis of variance was performed for each of the outcome variables. The results of these analyses are presented in the results section.

A correlation analysis was conducted first to determine the strength of the relationship between the variables of interest. The analysis, which is presented in Table 2, reveals that the variables are indeed correlated and in the anticipated directions.

Because positive and negative affect are independent dimensions, the positive and negative affect levels of the sample were evaluated and these were divided into four groups depending upon the respondents’ scores on the two scales. Recall that an individual can be low on one dimension (e.g. positive affect)

**TABLE 2
CORRELATION ANALYSIS**

	1	2	3	4	5	6
1. Job Satisfaction	1.000					
2. Job Satisfaction 1-item	.74**	1.000				
3. Organizational Commitment	.56**	.63**	1.000			
4. Turnover	-.65**	-.76**	-.60**	1.000		
5. PA	.50**	.44**	.46**	-.31**	1.000	
6. NA	-.42**	-.38**	-.18*	.32**	-.30**	1.000

** p<.0001

*p<.01

and high on the other (e.g. negative affect), high on both or low on both dimensions. Those respondents scoring less than 36 on the positive affect scale represented 52 percent of the sample and were categorized as low positive affect members, while those with scores in excess of 35 were identified as being high positive affect members (48%). Similarly, those scoring less than 16 on the negative affect scale were placed in the low negative affect category (52%) and those scoring in excess of 15 were categorized as high negative affect (48%). (It should be noted that high positive affect levels have positive connotations, as do the low negative affect levels.)

Following this step, the respondents were re-categorized into three general groups. It seemed obvious that the most positive grouping would be the respondents who had high positive affect and low negative affect scores. Thus, these individuals were placed in the group labeled “good.” Equally clear was the belief that the most negative grouping would consist of those individuals who exhibited both a low positive affect score and a high negative affect score. These individuals would therefore be placed in the category termed “poor.” Since the researchers were unable to determine which of the remaining two groups was better, the low positive affect/low negative affect and the high positive affect/high negative affect groups were placed in the category labeled average.

RESULTS

Each of the three hypotheses developed were based on the argument that “most psychologically healthy” individuals would exhibit behaviors consistent with that psychological health. The general perception is that an individual who has the ability to perceive the world in a generally positive way, who exercises self-control, who does not perceive that fortunes work against him/her, etc., is more likely to exercise behaviors that result in higher job satisfaction, organizational commitment, and reduced turnover intentions. As indicated in Table 3, the first hypothesis is supported as organizational commitment scores are significantly higher for the workers in the “good” PA/NA combination group than for either the “average” or “poor”

groups (F=23.2, p=.0001). In fact, each group’s organizational commitment scores are significantly different from the “good” group’s scores.

Hypothesis two, which held that turnover intentions would be lower as the workers’ PA/NA combination levels more closely approximated the ideal was also supported (F=14.7, p=.0001). Employees’ occupying the “good” category of PA/NA scores had significantly lower levels of turnover intentions than did those in the “average”

and “poor” categories. Additionally, this finding held true with the other two categories as well, as those in the “average” group had lower turnover intentions than did those in the “poor” group.

Hypothesis three, which held that the ideal combinations of positive and negative affect levels would be significantly related to job satisfaction, is supported. Job satisfaction increases significantly as the levels of PA/NA increase sequentially from poor to average and from average to good. The same result was found using the Job In General scale (Ironson et al., 1989), (F=36.4, p=.0001) and the single item used to measure job satisfaction (F=31.5, p=.0001). Thus, job satisfaction is related to the workers’ levels of positive and negative affect combinations.

The issue pertaining to experience and its effects was of interest. One could argue that the relationships between dispositional affectivity and the outcome variables might be a function of the sample’s level of experience. It could be contended that those with more experience would also be those with “better” PA/NA scores. Thus, self-selection could lead to the positive results uncovered. To evaluate the legitimacy of this argument, the “experience” groupings were compared using ANOVA to determine how experience levels affected the variables of interest. As the results in Table 4 indicate, experience was not significantly related to job satisfaction or organizational commitment. However, it appears that turnover intentions decrease with experience (F=4.6, p=.01).

ANOVA RESULTS

**Table 3
PA/NA Combinations and Job Attitude Dimensions**

PA/NA Combinations	Commitment	Turnover (low is better)	Job Satisfaction	Job Satisfaction 1 item
Poor	21.0 B	14.2 B	41.6 C	4.0 C
Average	21.8 B	13.9 B	45.8 B	4.8 B
Good	28.8 A	9.3 A	50.4 A	5.6 A
F (p)	23.2 (.0001)	14.7 (.0001)	36.4 (.0001)	31.5 (.0001)

DISCUSSION AND IMPLICATIONS

The findings clearly indicate that the workers' relative PA/NA combination levels are significantly related to their job satisfaction, organizational commitment, and turnover intentions. These findings suggest that firms could logically use combinations of PA/NA as a tool in their employee selection and training processes. By selecting employees with higher levels of positive affect and lower levels of negative affect, firms might discover that their employees are more satisfied, more organizationally committed, and have lower levels of turnover intentions.

The findings pertaining to the influence of a worker's positive/negative affect combinations were consistent with the hypotheses regarding job satisfaction, organizational commitment, and turnover. These findings suggest that managers might use positive and negative affect levels as a selection tool. Certainly, one could rationally separate the "best" combination from the "worst" combination of positive/negative affect levels. It has generally been assumed that "positive people" make better employees. However, these findings indicate that being "positive" alone is not the "ideal" circumstance. Similarly, the results indicate that one's being negative alone is not the "worst" circumstance. Instead, the findings show that one who has the following traits: positive, happy, perceiving the "best" in situations; combined with traits of being low in anger, negativity, etc. will obtain the optimal work attitudes. On the separate end of the continuum, the individual who has traits that don't allow him/her to experience joy, to see the good in situations, or to be positive; combined with the worker who possesses traits that make him/her angry, negative, etc. will possess the least desirable work attitudes. Further, certain combinations of these traits, may allow a worker to experience either optimal work attitudes or less than desirable ones.

Thus, it may be concluded that managers might use positive and negative affect levels of their employees discriminately. For example, the fact that a worker has a high positive affect score (or a high negative affect score) alone should not necessarily qualify (or disqualify) him/her for a job. Instead, the manager needs to assess the combinations of affect levels to use this as a tool in selection.

A manager interested in selecting and developing high performing workers may discover that the measurement of the individual's dispositional affect is an indicator of his/her likely work attitudes. However, the findings in this study indicate that the relationship is not as clear-cut as one might speculate. Instead, the findings indicate that combinations of positive and negative affect levels are related to work attitudes. Based on this finding, managers should evaluate the applicants' combined levels of positive and negative affect to ensure that those with the lowest (i.e., worst) combination of scores are not selected and then encourage the development of higher levels of positive affect and lower levels of negative affect through selection decisions.

ANOVA RESULTS

Table 4

Experience Levels and Job Attitude Dimensions

<i>Company Experience</i>	<i>Organizational Commitment</i>	<i>Turnover (low is better)</i>	<i>Job Satisfaction</i>	<i>Job Satisfaction 1 item</i>	<i>Positive Affect Scores</i>	<i>Negative Affect Scores</i>
<i>Minimal</i>	23.1	12.1 AB	45.3	4.7	35.1	15.5
<i>Average</i>	23.4	14.1 B	45.8	4.8	34.5	16.6
<i>Maximum</i>	24.7	10.9 A	46.6	4.9	35.5	16.6
<i>F (p)</i>	.9 (.43)	4.6 (.01)	.7 (.52)	.8 (.44)	.5 (.59)	1.2 (.31)

LIMITATIONS AND SUGGESTIONS FOR FUTURE RESEARCH

While the findings reported in this research provide strong indications that the "right" combinations of positive and negative affect might be used to predict specific work attitudes and behaviors, limitations exist. The first limitation is related to the fact that these results are based on a single company, a single group of workers, at a single point in time. Thus, the sampling frame limits the generalizability of these findings. Although a strength of the current study was the examination of many attitudinal variables in a single sample, it also warrants replication. Second, the research is limited by the degree to which both the criterion variables and the independent variables are accurately measured.

These limitations provide potential avenues for future research. The first suggestion for subsequent research involves expanding the sample to include workers from other firms, industries and in other geographic regions. A related extension of the present research could entail a longitudinal study. This research would assess the stability of these relationships over time and could lead to a more concrete evaluation of the empirical relationships between these variables. A third area for future research might entail an evaluation of the measures used in the research. This research would then lead to an establishment of norms for the scales which could then be used in identifying employees with the most desirable work attitudes and behaviors.

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The Impact of Hardening in the Homeowner's Insurance Market on Ohio Residential Real Estate Brokerage Markets

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INTRODUCTION

The twenty-first century did not start well for the nation's property and casualty insurers. The seeds of the industry's recent problems, however, were sewn during the 1990's when competition between insurers caused premiums to lag behind cost increases. With the start of the new century, the industry was hard hit by a number of factors including an extraordinary number of claims from catastrophic events (e.g., storms, wild fires and earthquakes), rising repair costs, inadequate premiums, and staggering claims from the September 11 terrorist attacks. Companies writing homeowner's policies also had to cover large jury awards for the latest environmental concern - toxic mold. Mold claims, virtually unheard of just a few years ago, cost insurers more than \$1 billion in 2001. For the year 2001, total claims reached \$381 billion, an increase of 86 percent over claims made in 2000. Consider the situation at State Farm, the country's largest home insurer with policies on more than 15 million homes nationwide. In 2001, State Farm reported a \$5 billion loss. In an attempt to stabilize its financial condition, the company announced that it would stop writing new homeowner's policies in 20 states and applied to state insurance regulators for (in many cases double-digit) rate increases for existing policies. In addition, sagging securities markets resulted in reduced investment income for insurers. In 2001, property and casualty insurers reported losing \$9 billion compared to a \$27 billion profit in 2000.

Observations by industry authorities highlight the significance of the problem during recent years. The Insurance Information Institute reports that the average cost of homeowner's insurance increased by 8% in 2002 and 7.8% in 2003. According to Cathy Whatley, President of the National Association of REALTORS® (NAR) the high cost of homeowner's insurance premiums and the lack of available coverage have become significant barriers to homeownership; most affected are buyers with no credit history and people attempting to purchase a property with prior water-related claims. NAR considered this problem so significant that they established an Insurance Task Force in September, 2002. The task force was charged with assessing the state of affairs, exploring solutions, and developing an appropriate role for NAR to help its state associations address what they considered to be a serious availability/affordability problem.¹

If homeowner's insurance is unavailable, the impact on the real estate brokerage industry is obvious. Problems may occur, however, even if insurance is available at increased cost because

insurance is a necessary component in securing a mortgage. Higher insurance premiums may result in some mortgage loan applicants failing to meet the 28%/36% underwriting standards required by conventional lenders. In addition, some would be home purchasers that still qualify for a mortgage loan may decide that the cost is prohibitive. In either case, fewer transactions will occur. Hardening of the property insurance market can impact a number of groups, including current property owners, those considering the purchase of property, real estate licensees, and their regulators.

There are indications that the insurance industry is turning the corner. The Insurance Information Institute estimates that homeowner's insurance premiums will increase by only 2.8% in 2004, and Weiss Ratings, Inc. reports total insurance industry earnings for the first quarter of 2004 at \$13.6 billion.² This includes \$5.5 billion in underwriting profit (the first time this figure has been positive in the last five years).

The present study focuses on the impact of the hardening homeowner's insurance market on residential property transactions in Ohio. The primary purpose of this study is three-fold: (1) to quantify the impact on residential transactions resulting from higher insurance premiums/reduced availability, and the increasing propensity of insurance companies to require inspections and, in many cases, demand property modifications as a condition of issuing a policy; (2) to identify factors related to the problem (e.g., regional differences, property value, and buyer characteristics); and (3) to discover the actions Ohio real estate licensees are taking to mitigate the problem. To accomplish these objectives, the responses to a survey mailed to a geographically proportional random sample of Ohio REALTORS are analyzed.

The remainder of this paper is organized in the following manner. In the next section we briefly review the report commissioned by NAR to investigate property insurance price and availability trends; we focus on information pertinent to Ohio. In the third section, we present information about the Ohio FAIR (Fair Access to Insurance Requirements) Underwriting Association. In the fourth section, we detail the survey responses. In the fifth section, our analysis of the survey data is presented. The paper concludes with a summary and conclusions.

NATIONAL ASSOCIATION OF REALTORS (NAR) STUDY

Grace and Klein (2003) examine market structure and performance indicators to quantify property and casualty insurance

price and availability trends nationwide.³ They report considerable variation across states, but in general found that residential and commercial property insurance premiums have risen sharply in recent years and that coverage availability has often been limited with some homeowners being forced to switch to state-sponsored insurance plans which typically offer more limited coverage.⁴ Their study includes information that indicates that while the situation in Ohio may be serious, it may not be as critical as in many other states. For example, they report that as of the third quarter of 2002, the average premium per insured household in Ohio was the third lowest of any state: \$365. The national average premium paid per insured household at the same time was \$632.⁵ In addition, they report that the percentage increase in average premium per insured household in Ohio from 1997 to 2002 was significantly less than nationwide: 28.3% compared to 39.9%. Only nine states experienced a lower rate of increase over the period 1997-2002.

Grace and Klein found the measurement of homeowner's insurance availability a bit more difficult. One commonly used measure of insurance availability is the number, or proportion, of policies issued through state-sponsored FAIR plans.⁶ They report that in 2001, 30,581 policies with a value of \$4,817,759,000 issued through the Ohio FAIR Underwriting Association were outstanding. This figure represented approximately one percent of the value of all outstanding homeowner's policies in the state, and the one percent share put Ohio in sixteenth position of the thirty states that offer FAIR plans.⁷ However, the number (value) of policies insured through the Ohio FAIR Underwriting Association increased by 23.7% (25.8%) between 1999 and 2001. Over the same time period the number of FAIR Plan policies outstanding in all states with Plans decreased by 14.7%, and the value of all state Plan policies increased by only 2.3%.

Grace and Klein suggest that nationwide the situation may be improving. In several Midwestern states, including Ohio, weather-related perils appear to be significant cost drivers and there is little one can do to control these events. However, the value of securities portfolios held by homeowner's insurance companies began to improve in late 2002 and the supply of homeowner's insurance may be beginning to increase in some states which should have a beneficial impact on premium cost and policy availability.⁸ This is more likely to occur in states where rates have reached adequate levels and costs appear to be under control. Regarding rate levels, Grace and Klein report that premiums needed to be increased by 3% in Ohio for insurers to earn an adequate rate of return (14%). Comparatively, again, the situation in Ohio is better than most other states. There were only seven states in 2003 where insurance rates were closer to adequate than in Ohio. Finally, they report that the average loss per insured household in Ohio for the third quarter, 2002 was \$276. This figure compares favorably to the national average loss per insured household of \$486 at the same time, and also compares favorably to the previously mentioned \$365 average premium per insured Ohio household.

Grace and Klein do not empirically examine the linkage between hardening of the homeowner's insurance market and real estate markets, but they warn that further hardening will

affect the real estate market and the costs associated with the timely buying and selling of property. Nor did they include an examination of the impact on transactions resulting from the increasing propensity of insurance companies to require property modifications as a condition of issuing a policy. The present study, therefore, extends the NAR study by investigating these issues through the analysis of survey responses from REALTORS in Ohio.

THE OHIO FAIR PLAN UNDERWRITING ASSOCIATION

One obvious result of the riots that occurred in inner cities across the United States during the 1960s was catastrophic property loss. Subsequently, private insurers were unable (or unwilling) to provide coverage for inner city properties and many property owners were left uninsured. Because proof of adequate insurance coverage is a normal prerequisite for mortgage origination, loans for inner city property improvements or acquisition became difficult or impossible to obtain. To address this problem, Congress passed the Federal Riot Reinsurance Act which went into effect on August 1, 1968. This law specified that the Federal government would provide reinsurance to insurance companies for catastrophic loss due to riot in those states that established a FAIR Plan. "FAIR" is an acronym for Fair Access to Insurance Requirements.

In 1968, Ohio was among the states that quickly implemented a FAIR Plan.⁹ The Ohio FAIR Plan Underwriting Association (Plan) is regulated by the Department of Insurance of the State of Ohio and is an unincorporated association of all insurance companies that are approved by the State Insurance Commission to write fire insurance in Ohio. The insurance companies are required to be members in the association and to share in Plan losses (or profits) in proportion to the amount of business that they do in the state. Initially, coverage under the Plan was available only in the state's ten major urban areas, but by 1977 the entire state was designated as eligible for coverage and the Plan is now used to make insurance coverage available for thousands of properties deemed uninsurable, due to a variety of circumstances, by the private sector.

Insurance coverage is available through the Plan for any eligible property at "standard" rates if coverage is unavailable in the voluntary insurance market (i.e., in order to qualify for a policy through the Plan the applicant must provide evidence that he/she has been rejected for coverage by two insurance companies). Given the findings of the present study, it is important to note that Plan underwriters do not consider the buyer's credit history (or environmental conditions). However, loss history is considered in determining the type of coverage that will be provided, and a (no-cost to the applicant) inspection of the property, conducted by an inspector assigned by the superintendent of the State Insurance Commission, is required to assure that the property meets FAIR underwriting standards.

Underwriting activity through the Ohio FAIR Plan for the period 1997 through 2003 is shown in Exhibit 1. The data in the exhibit provides evidence of continued hardening in the homeowner's insurance market, including the increase in the number

EXHIBIT 1

Ohio FAIR Plan Underwriting Activity: 1997-2003

<u>Year</u>	<u>Total Number Policies</u>	<u>Number of Renewals</u>	<u>Number of New Policies</u>	<u>Written Premiums in \$ Millions</u>	<u>Underwriting Loss in \$ Millions</u>
1997	28,500	18,694	9,806	7.2	2.9
1998	26,471	16,122	10,349	8.2	2.8
1999	24,731	17,535	7,196	8.2	3.0
2000	31,617	22,943	8,674	8.98	3.17
2001	30,581	20,771	9,810	10.66	3.48
2002	43,005	23,559	19,446	19.0	2.4
2003	70,761	34,398	36,363	28.9	3.0

Source: Ohio FAIR Plan

of policies renewed. In addition, at year-end 2003, there were 70,761 policies in force. This figure represents almost 2% of all outstanding homeowner’s policies in the state; up from almost 1% in 2002. The total number of policies issued through the Plan increased by 64.5% between 2002 and 2003; more than twice the rate of increase from 1999 to 2001.

SURVEY RESPONSE SUMMARY

On June 15, 2004 the survey (which may be viewed at www.wright.edu~joseph.coleman) was mailed to a geographically proportional random sample of 5,000 of the 31,500 members of the Ohio Association of REALTORS (OAR). Usable responses were received from 406 licensees (8.12% response rate). The 364 respondents with a sales associate license had, on average, 12.83 years of real estate experience. A broker license was held by 42 respondents and including them, the average years of experience in real estate for all respondents was 14.76 years. The average respondent was 52.48 years of age and was involved in approximately 22 transactions that closed during 2003. The average value of these transactions was \$152,361. Females (males) comprise 60.9% (30.1%) of the respondents who disclosed their gender (25 respondents chose not to do so).¹⁰ Approximately 5% of the respondents indicated that they were a member of a minority group (12 respondents elected not to provide this information). Our mailing list was not limited to licensees specializing in residential transactions, but our sample is dominated by these individuals. Two hundred seventy-nine respondents (68.7%) reported that they devote 100% of their efforts on residential brokerage.

The respondent’s answers to survey questions 10a – 10d, which elicited opinions on the cost and availability of property insurance, are reported in Exhibit 2. The parenthetical numbers below the headers in the

upper and lower panels of the exhibit were used to calculate the mean values shown in the last column. Examination of Exhibit 2 reveals that the respondents are almost evenly split on the issue of insurance cost. One hundred eighty-five respondents either “agreed” or “strongly agreed” that the cost of insurance is currently a problem, while 188 either “disagreed” or “strongly disagreed.” Respondent opinion regarding availability of coverage was slightly more one-sided. One hundred thirty-three respondents either “agreed” or “strongly agreed” that insurance availability is currently a problem, but 201 either “disagreed” or “strongly disagreed.”

A majority of the respondents believe that insurance cost is becoming more problematic and almost half the respondents believe the same for insurance availability. Two hundred forty-eight respondents believe that the insurance cost problem is either “slightly increasing” or “increasing,” while only 11 thought the cost problem was “slightly decreasing” or “decreasing.” Two hundred respondents believe that the insurance availability problem is either “slightly increasing” or “increasing,” while only 9 thought the availability problem is “slightly decreasing” or “decreasing.”

Responses to a survey question which gave respondents the opportunity to specify actions they take to address transactions delayed or lost due to difficulties in obtaining property insurance, are summarized in Exhibit 3. The “actions” are described in the first column. The number (percentage) of respondents that indicated they took each action when acting as the seller’s agent is reported in the second (third) column. The number (percentage) of respondents that reported taking each action while acting as the buyer’s agent is shown in the fourth (fifth) column. The total number of actions taken, shown on the last line of the exhibit, is larger than the number of surveys returned because many agents indicated that they pursued multiple actions. The

EXHIBIT 2

Respondent Opinions on Property Insurance Cost and Availability

<u>STATEMENT</u>	<u>Strongly Agree (1)</u>	<u>Agree (2)</u>	<u>No Opinion (3)</u>	<u>Disagree (4)</u>	<u>Strongly Disagree (5)</u>	<u>No Response</u>	<u>Mean</u>
<i>Cost of insurance is a problem</i>	32	153	59	173	15	4	3.04
<i>Availability of insurance is a problem</i>	31	102	68	182	19	4	3.14
<u>STATEMENT</u>	<u>Slightly Decreasing (1)</u>	<u>Slightly Decreasing (2)</u>	<u>No Change (3)</u>	<u>Slightly Increasing (4)</u>	<u>Increasing (5)</u>	<u>No Response</u>	<u>Mean</u>
<i>Cost problem is:</i>	4	7	135	134	114	12	3.88
<i>Availability problem is:</i>	1	8	179	119	81	18	3.70

Source: responses to survey questions 10a – 10d.

information shown in the unshaded portion of Exhibit 3 includes the actions specified on the survey form and the information shown in the shaded portion of the exhibit details the actions pursued by respondents that indicated “other” to this survey question.

Given respondent’s perceptions of the extent and trend of the situation (reported in Exhibit 2) it is surprising that “do nothing” was the most frequently cited action: nearly 73% of seller’s agents and over 52% of buyer’s agents indicated this “action.” Only 73 respondents reported that they took some action when acting as the seller’s agent and 174 reported taking some action when acting as the buyer’s agent. The second most frequently cited action specified was to obtain a copy of the buyer’s credit report: 5.2% of seller’s agent’s and 11.3% of buyer’s agent’s indicated they follow this practice. Difficulties in obtaining insurance coverage, however, can also result from problems associated with the subject property, and the values reported in the third and fourth lines of Exhibit 3 indicate that few agents formally investigate the insurance claims history of the property. Two respondents put a question mark next to these selections suggesting that they may have been unfamiliar with a CLUE report.¹¹

Focusing on the actions shown in the shaded portion of Exhibit 3, the most frequently cited action was to refer the buyer to an insurance agent; 13 seller’s agents and 56 buyer’s agents reported taking such action. Another popular action, especially for buyer’s agents, was to advise buyers to shop for a policy early; 30 respondents indicated that they did so. Either of these actions may be effective in reducing problems, but perhaps a more effective activity was reported by 6 agents who reported

that they monitored the buyer’s progress in obtaining coverage. Other actions that appear to hold promise were mentioned by a handful of respondents. These include, facilitating the insurance company’s inspection of the property, questioning both the buyer and seller about their insurance claim history, recommending a home inspector (to identify potential problems early in the process), and recommending that seller’s make needed repairs. However, 2.7% of seller’s agents and 4.3% of buyer’s agents reported taking “other” actions which have been grouped together, and shown in the last shaded line of Exhibit 3, because (in the researcher’s opinion) the reported actions are of dubious value if the objective is to minimize delays. Examples include “hold the buyer and buyer’s lender responsible for insurance,” “inform the buyers that they must have insurance at closing,” and “it’s in the contract that the buyer must have insurance.”

Responses to survey questions which gave respondents the opportunity to express the extent to which they have experienced delayed and/or lost transactions because property insurance was either too expensive, unavailable, or because the insurance company required modifications to the property, are summarized in Exhibit 4. Information about delayed transactions is shown in the unshaded portions of the exhibit and information about lost transactions is shown in the shaded portions. The reason for the delayed (or lost) transaction is shown in the first column. The second column in the exhibit shows the total number of reported delayed (or lost) transactions. The third column shows the number of respondents that included a response (including 0) to the survey question. The fourth column reports the average number of delayed (lost) transactions per respondent for all respondents (second column/third column). The

fifth column shows the number of respondents who indicated a delayed (lost) transaction and in the sixth column this number is converted into the average number of transactions per respondent for only those respondents who indicated one or more delayed (lost) transactions (second column/fifth column). The highest number of delayed or lost transactions reported by any single respondent is shown in the seventh column.

Examination of Exhibit 4 reveals that an insurance-related problem is more likely to result in a delay rather than a lost transaction. Respondents reported being involved in 509 delayed transactions and 89 lost transactions. Several measures indicate that the most frequent cause of delayed transactions is the insurance company demanding modification to the property. First, 90 (22.2% of all) respondents indicated that they had encountered a delayed transaction due to this circumstance; more than any

EXHIBIT 3

Actions Taken to Address Delayed and Lost Transactions

<i>Action</i>	<i>Seller’s Agent</i>		<i>Buyer’s Agent</i>	
	<i>Number of Responses</i>	<i>%</i>	<i>Number of Responses</i>	<i>%</i>
<i>Nothing</i>	296	72.9	212	52.2
<i>Secure Buyer’s Credit Report</i>	21	5.2	46	11.3
<i>Obtain a CLUE Report</i>	7	1.7	8	2.0
<i>Favorable CLUE Report Condition of Sale</i>	4	1.0	11	2.7
<i>Refer to Insurance Agent</i>	13	3.2	56	13.8
<i>Monitor Process</i>	6	1.4	6	1.5
<i>Ask Seller About Claim History</i>	5	1.2	2	0.5
<i>Recommend Home Inspector</i>	3	0.7	3	0.7
<i>Provide Buyer with Seller’s Insurance Information</i>	3	0.7	1	0.2
<i>Advise Seller to Make Repairs</i>	3	0.7	0	0.0
<i>Give General Advice</i>	2	0.5	8	2.0
<i>Facilitate Insurance Company Inspection</i>	1	0.2	2	0.5
<i>Advise Buyer to Hunt for Insurance Early</i>	1	0.2	29	7.1
<i>Ask Buyer about Claim History</i>	0	0.0	1	0.2
<i>Other</i>	11	2.7	18	4.3
<i>No Response</i>	37	9.1	20	4.9
<i>Total</i>	450		423	

Source: responses to survey question 11. The percentages shown in the third and fifth columns of Exhibit 4 are based on 406 responses and add to more than 100 percent because many respondents indicated multiple actions.

EXHIBIT 4

Delayed and Lost Transactions

<i>Variable</i>	<i>Number</i>	<i>Number of Responses</i>	<i>Average Number of Problems per Respondent (All Respondents)</i>	<i>Number of People Reporting Transaction</i>	<i>Average Number of Problems per Respondent Reporting a Transaction</i>	<i>Maximum Value</i>
<i>Delayed due to insurance cost</i>	184	398	0.46	61	3.02	11
<i>Lost due to insurance cost</i>	42	402	0.10	26	1.62	6
<i>Delayed due to required home modification</i>	216	400	0.54	90	2.40	10
<i>Lost due to required home modification</i>	33	402	0.08	24	1.38	4
<i>Delayed due to non-availability of insurance</i>	109	402	0.27	54	2.02	10
<i>Lost due to non-availability of insurance</i>	14	398	0.04	9	1.56	3
<i>Delayed transaction closed using FAIR Plan</i>	30	402	0.07	22	1.36	3

Source: responses to survey questions 12-17.

other cause. Second, 216 of the 509 (42.4%) reported delays were due to this circumstance. Third, note that this circumstance also resulted in the largest average affected transaction number for all respondents (0.54). Delays were attributed to the cost of coverage in 184 (36.1%) cases. This circumstance resulted in the largest average affected transaction number for affected respondents (3.02). Unavailability of coverage was cited as the cause of 109 (21.4%) delayed transactions.

Two measures suggest that cost of coverage is the most prevalent cause of lost transactions. First, 26 (6.4% of all) respondents indicated that they lost a transaction due to this circumstance; more than any other cause. Second, 42 of the 89 (47.2%) lost transactions were lost for this reason. Another 33 (37.1%) transactions were reported lost due to property modifications required by the insurance company. Apparently the property owners were unable or unwilling to make the specified modifications. Only 14 (15.7%) lost transactions were attributed to the unavailability of coverage. With Ohio's FAIR Plan, one would expect this number to be low.

The last line of Exhibit 4 indicates that 22 respondents managed to close 30 delayed transactions by using Ohio's FAIR Plan. In other words, 27.5% of the 109 transactions delayed because private insurance was unavailable were rescued by the FAIR Plan. In addition, 19 other respondents volunteered information (not reflected in Exhibit 4) that indicated that they avoided delayed transactions by utilizing Ohio's FAIR Plan in a timely fashion.¹²

Given the 8,685 transactions respondents reported closing in 2003 and the total number of

delayed and lost transactions reported, we estimate that approximately 5.86% (+ 0.49%) of all residential real estate transactions in Ohio were delayed and approximately 1.02% (+ 0.21%) of all transactions were lost due to disruptions in the property insurance industry during 2003. These figures are approximations for at least two reasons. First, there is the possibility that respondents may have over-reported the number of transactions they closed which would lower our estimate of the impact. Second, we are uncertain whether all of the reported delayed/lost transactions occurred during 2003 which may increase our estimate of the impact.

The factors that respondents indicated were the cause of delayed/lost transactions are shown in Exhibit 5. For expository expedience the factors in the exhibit are listed from the most to least frequent cause for delayed transactions. In addition, factors that involve the buyer are shown in the shaded portions of the exhibit and factors associated with the property are shown in the unshaded portions.

Note that both delayed and lost transactions are much more likely to result from factors associated with the property compared to factors associated with the buyer. At least 20.1% of the delayed transactions and at least 16.7% of the lost transaction resulted from factors associated with the buyer, while at least 70.7% of the delayed transactions and at least 77.9% of the lost transactions resulted from factors associated

EXHIBIT 5

Factors Responsible for Delayed and Lost Transactions

<i>Factor</i>	<i>Delayed</i>		<i>Lost</i>	
	<i>Number</i>	<i>%</i>	<i>Number</i>	<i>%</i>
<i>Electrical</i>	22	22.2	2	11.1
<i>Buyer had little/no/bad credit history</i>	14	14.1	3	16.7
<i>Property had previous water claims</i>	9	9.1	0	0
<i>Property with previous unspecified claims/bad CLUE</i>	7	7.1	2	11.1
<i>Roof</i>	7	7.1	3	16.7
<i>Poor overall condition of the property</i>	7	7.1	3	16.7
<i>Other specified property problems (siding, sidewalk, foundation, septic, water lines, property age)</i>	7	7.1	1	5.6
<i>Buyer had previous insurance claims</i>	4	4.0	0	0
<i>Fireplace insert/chimney/buck stove</i>	3	3.0	0	0
<i>Vacant property/repossession</i>	3	3.0	0	0
<i>Buyer indicated short-term tenure/investor</i>	2	2.0	0	0
<i>Natural disaster</i>	2	2.0	0	0
<i>Flood zone</i>	1	1.0	3	16.7
<i>Environmental problem</i>	1	1.0	0	0
<i>Property not up to FAIR standards</i>	1	1.0	0	0
<i>Unspecified</i>	9	9.1	1	5.6
<i>Total</i>	99	100.0	18	100.0

Source: responses to survey question #18 and #19.

with the property.¹³ A reexamination of the data in Exhibit 3 shows that the respondents did not take actions that address property and buyer problems in proportion to the figures shown in Exhibit 5.

While a responsible agent should take actions to address most (if not all) of the factors enumerated in Exhibit 5, the survey results suggest that many problems could be avoided if agents concentrated their efforts on two factors. The most frequent cause of delayed transactions is outdated electrical components or systems; 22 transactions were delayed and 2 transactions were lost because the insurance company required updates to electrical systems. Sellers could spend a few hundred dollars on a presale property inspection which can serve as an effective marketing tool if no problems are discovered. If the inspection uncovers defects, the inspection gives the seller time to correct defects before they confound the buyer's search for property insurance. Even if sellers are unwilling to pay for an independent inspection, agents should take action to facilitate the insurance company's property inspection. Several respondents indicated that insurance companies can be arbitrary regarding needed repairs and in scheduling inspections, but assuring that the property is available for inspection at the scheduled time will facilitate the process.

The second most frequent cause of delayed and lost transactions is buyers with little/bad/or no credit history. Agents could reduce this problem by obtaining a copy of the buyer's credit report fairly early in the sales process. Familiarity with the Ohio FAIR Plan, and use of it where appropriate, can also minimize delays.

Two notable characteristics associated with problem transactions are that they occur with greater frequency when a first-time buyer is involved and when the buyer is left to his or her own devices in locating an insurance company. Sixty-two percent of the delayed transactions involved first-time buyers as did 55.6% of the lost transactions. Seventy-four percent of delayed transactions and 55% of lost transactions occurred when the buyer located the insurance company. Only 10% of delayed and lost transactions occurred when the real estate agent located the insurer. These results suggest that agents can reduce property insurance related problems by actively assisting the buyer in the insurance company search.

The average list price of delayed transactions was \$123,744; while the average list price of lost transactions was \$116,106. Both these figures are significantly lower than the average price of all transactions closed by the affected respondents. The average list price for closed transactions for respondents that encountered a delay was \$140,728, while the average list price for closed transactions for respondents that encountered a lost transaction was \$157,722. This indicates that delayed/lost transactions are associated with lower priced houses. Previous research suggests that older houses sell for lower prices, ceteris paribus. Although our survey did not inquire about the age of the subject property, coupling the above price information with the previous research findings leads us to surmise that the probability of insurance related problems is positively related to property age

(older properties have a higher probability of containing outdated components and a longer time period during which insurance claims could have been filed).

Respondents were classified according to whether they experienced insurance-related problems (either delays or lost transactions) and whether they take actions to address problems. As shown in Exhibit 6, 68.7% (279/406) of the respondents reported that they had not encountered a problem, and 179 of 229 respondents that take no action had not encountered a problem, but the other 50 were not as fortunate. Further, 100 of the 177 respondents who take action encountered no problems, but 77 did. In other words, 21.8% (50/229) of respondents who took no actions encountered problems, but a significantly higher percentage, 43.5% (77/177), of respondents who take actions encountered problems. These figures suggest that respondent's behavior is influenced by their personal experience. In essence, those who have encountered insurance-related problems tend to take action, and those that have not encountered problems, do not.

EXHIBIT 6

Interaction of Insurance-Related Problems and Actions to Address Them

Action Taken	Number of Respondents Reporting No Problems	Number of Respondents Reporting Problems	Total
NO	179	50	229
YES	100	77	177
Total	279	127	406

SURVEY RESPONSE ANALYSIS

In this section we present our analysis of the survey data. First, variables that distinguish respondents who indicated that they take action to address insurance-related problems from respondents that indicated that they did not are identified. Second, we investigate the relationship of the actions taken by respondents to the incidence of insurance-related problems. Finally, we identify variables that distinguish respondents that have experienced insurance-related problems from those that have not.

A two-sample t-test was used to identify variables that differ significantly between two groups; the 177 respondents that take some action, and the 229 respondents that take no action. If a respondent indicated that they took any action, they were placed in the former group. The results are summarized in Exhibit 7. Examination of the first four lines in Exhibit 7 reveals that respondents who took action were older, with more real estate experience, and involved in more closed transactions during 2003 compared to respondents who did not take action. The fifth line of the exhibit shows that there was no significant difference between the two groups with regard to the average selling price of transactions closed in 2003. The information in the sixth and eighth lines indicates that respondents who took action considered insurance cost and availability problems to be more serious than respondents who did not take such actions. The seventh and ninth lines show that respondents who took actions considered the insurance cost and availability problems to be

EXHIBIT 7

Variables that Distinguish Respondents that Do/Do Not Take Problem Actions

Variable	Mean Value		t value	Pr > t
	Do Nothing	Do Something		
Years as a sales associate	11.97	13.93	2.14*	0.0333
Total years in real estate	13.17	16.80	3.46	0.0006
Respondent age	51.41	53.87	2.01*	0.0456
Number of transactions in 2003	19.15	25.51	2.70*	0.0073
Average sale price of 2003 transactions (dollars)	156,242	147,333	0.81	0.4190
Cost of insurance is a problem	3.21	2.82	3.62*	0.0003
Cost problem is increasing	3.68	4.13	5.07*	<.0001
Availability of insurance is a problem	3.29	2.94	3.18*	0.0014
Availability problem is increasing	3.53	4.04	4.70*	<.0001
Transaction delayed due to insurance cost	0.17	0.84	4.25	<.00010
Lost transaction due to insurance cost	0.04	0.19	2.82	0.0054
Transaction delayed due to required property modification	0.319	0.828	3.65	0.0003
Transaction lost due to required property modification	0.044	0.131	2.14	0.0335
Transaction delayed due to non-availability of insurance	0.154	0.423	2.56	0.0111
Delayed transaction closed using Ohio FAIR Plan loan	0.035	0.131	2.51	0.0127
Transaction lost due to non-availability of insurance	0.009	0.069	2.11	0.0365

* The folded F-test showed the population variances for each subgroup should be assumed to be equal. In this case the pooled t-test was used. The Satterthwaite test was used when the folded F-test indicated that the population variances should be assumed to be unequal.

increasing more than respondents who took no action. The information in the last seven lines of the exhibit show that respondents who took action were involved in significantly more problem transactions compared to respondents who did not take action to address insurance-related problems.

A Chi-square proportions test was used to investigate the relationship between actions taken and whether or not the respondent reported being involved in a problem transaction. This analysis was limited to the 177 respondents who reported that they take action; 100 who did not encounter one or more problems and 77 who did. No actions distinguish the two groups in our sample. These results preclude prediction of actions that agents can take to avoid insurance-related problems. It appears that respondents to this survey, at least initially, reacted to problems rather than acting proactively.

Finally, a two-sample t-test was used to determine variables that differ significantly between two groups: 127 respondents that indicated they had encountered a delayed or lost transaction and 279 respondents that indicated that they had not. Examination of the results, summarized in Exhibit 8, reveals that sales associates who experienced an insurance-related problem had fewer years experience (line 1) and closed more transactions in 2003 (line 4) compared to their counterparts who had not experienced a problem. Additionally, the average sale price of transactions closed in 2003 (line 5) was significantly lower for respondents who experienced insurance-related problems. No significant difference in respondent age (line 3) or total years in real estate (line 2) were discovered. As shown in the last four lines in Exhibit 8, respondents who had encountered insurance-related problems were more likely to agree that cost and availability of insurance is currently a problem and more likely to agree that the problem is increasing.

SUMMARY AND CONCLUSION

One of the objectives of this study was to identify the actions Ohio real estate licensees are taking to address homeowner's insurance-related problems. Accomplishing this task was complicated by the fact that the majority of respondents

EXHIBIT 8

Variables that Distinguish Respondents that Have/Have Not Encountered Problems

Variable	Mean Value		t value	Pr > t
	No Problems	Problems		
Years as a sales associate	13.386	11.22	2.29*	0.0229
Total years in real estate	15.013	13.932	0.96	0.3394
Respondent age	52.833	51.541	0.97	0.3316
Number of transactions in 2003	19.411	29.798	-4.13	<.0001
Average sale price of transactions in 2003 (dollars)	166,584	142,035	2.44*	0.0150
Cost of insurance is a problem	3.2624	2.5161	6.54	<.0001
Cost problem is increasing	3.7588	4.1707	-4.35	<.0001
Availability of insurance is a problem	3.403	2.5	8.21	<.0001
Availability problem is increasing	3.5669	4.0331	-4.95*	<.0001

* The folded F-test showed the population variances for each subgroup should be assumed to be equal. In this case the pooled t-test was used. The Satterthwaite test was used when the folded F-test indicated that the population variances should be assumed to be unequal.

indicated that they do nothing. The results preclude prediction of actions that agents can take to avoid insurance-related problems. It appears that respondents to this survey, at least initially, reacted to problems rather than acting proactively.

A recently released NAR study documented that, nationwide, the homeowner's insurance market has hardened; property insurance premiums have increased sharply and coverage availability has often been limited. The NAR study did not, however, investigate the impact of this hardening on real estate transactions, nor did it include an examination of the impact on transactions resulting from the increasing propensity of insurance companies to require property modifications as a condition of issuing a policy. In the present study, survey data collected from members of the Ohio Association of REALTORS is used to analyze these issues. A variety of data contained in the NAR study suggest the impact of hardening in the property insurance industry on Ohio real estate markets may not be severe. The results of the present study tend to support this suggestion.

In the present study, REALTORS were asked their opinion of the situation in Ohio. Respondents were almost evenly split on whether current premium levels are a problem, but a majority of them believe that insurance cost is becoming more problematic. Respondent opinion regarding availability of coverage was more one-sided. A plurality disagreed that insurance availability is a problem, but a larger plurality believe the situation is becoming more problematic.

Respondents reported being involved in 509 delayed transactions and 89 lost transactions. Based on these figures, we conclude that difficulty in obtaining property insurance is more likely to result in a delay rather than a lost transaction, and estimate that approximately 6%, 1% of all residential real estate transactions in Ohio were delayed or lost, respectively, due to hardening in the property insurance industry during 2003. The most frequently cited cause of delayed transactions was the insurance company demanding modification to the property, and the most frequently cited cause of lost transactions was cost of coverage. Both delayed and lost transactions are more likely, by a ratio of roughly 4 to 1, to result from problems with the property as opposed to problems associated with the buyer. However, two buyer-related characteristics associated with delayed and lost transactions are first-time home buyers and buyers who locate the insurance company without assistance from a real estate agent or lender.

The results also suggest that many problems could be avoided if agents concentrate their efforts on two factors. The most frequent cause of delayed transactions is outdated electrical components or systems. The second most frequent cause of delayed and lost transactions is buyers with little/bad/or no credit history. Approximately 20% of the problem transactions in our survey were attributed to buyer-related factors. Real estate agents can help avoid these problems by assuring that buyers are aware of the buyer-related factors insurance companies use in underwriting decisions. An excellent checklist that could be used for this purpose can be viewed at www.iii.org/static/img/brochures/homeowners_checklist.htm.

References

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Stitz, G., 2004 Ohio Association of REALTORS® Member Survey Findings, 2004, Ohio Association of REALTORS®, Columbus, Ohio.

Endnotes

1. Its recommendations can be found at www.realtor.org/GAPublic.nsf/Pages/insrec?OpenDocument.
2. Information provided by these organizations can be viewed at www.iii.org and www.weissratings.com.
3. The full report can be viewed at [www.realtor.org/Research.nsf/files/frgraceklein.pdf/\\$FILE/frgraceklien.pdf](http://www.realtor.org/Research.nsf/files/frgraceklein.pdf/$FILE/frgraceklien.pdf).
4. Less desirable "non-standard" policies (with higher premiums, larger deductibles, and/or more exclusions) are also available through the private sector.
5. Homeowners in California paid the highest average premium: \$1,246 and homeowners in Delaware paid the lowest average premium: \$341.
6. A problem with this measure is that only thirty states have such plans. Another is that it does not reflect the extent to which homeowners have been effectively forced to switch to private insurers that they prefer less.
7. The jurisdictions with FAIR plans are: California, Connecticut, Delaware, District of Columbia, Florida, Georgia, Hawaii, Illinois, Indiana, Iowa, Kansas, Kentucky, Louisiana, Maryland, Massachusetts, Michigan, Minnesota, Missouri, New Jersey, New Mexico, New York, Ohio, Oregon, Pennsylvania, Rhode Island, Virginia, Washington, West Virginia and Wisconsin.
8. Weiss Ratings, Inc reports that capital gains realized by the insurance industry during the first quarter of 2004 was \$3.2 billion compared to \$1.1 billion for the first quarter of 2003.
9. Creation of the Plan was authorized by Section 2744.081 of the Ohio Revised Code. Interested readers can learn more about Ohio's FAIR Plan than we provide in this brief presentation by contacting either the Ohio FAIR Plan at: (614) 839-6446, (800) 282-1772, www.ohiofairplan.com or by contacting the Ohio Department of Insurance at: (614) 644-2658, www.ohioinsurance.gov.
10. Neither the Ohio Real Estate Commission nor the Ohio Association of REALTORS track licensee/member age or gender. This makes it impossible to determine any response bias based on these two factors. Respondents to the OAR 2004 Member Survey had a median age of 54 years and 62% were female.
11. Basic information about CLUE reports can be found at www.ohioinsurance.org/newsroom/clue_reports07-03.asp also at www.ohioinsurance.org/newsroom/pdf/property_insurance.pdf and at www.pciaa.net/sitehome.nsf/main.
12. This information was not solicited. Therefore, the percentage of agents that pursue this strategy may be higher.
13. The qualifier "at least" is used here because of the "Unspecified" responses. In Exhibit 5, 11.2% (36.1%) of seller's (buyer's) agents indicated actions to investigate/assist the buyer, while only 8.2% (10.7%) of seller's (buyer's) agents indicated actions to investigate/help assure the insurability of the property.

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