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The dynamic interactions among the stock, bond and insurance markets



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ABSTRACT

This paper explores the lead–lag relationships and the dynamic linkages among stock, insurance and bond markets in the developed countries. This is the first empirical study which sheds light on the extent and magnitude of the association among these financial markets used by the Granger causality test of [Toda and Yamamoto \(1995\)](#), generalized impulse response approach, and generalized variance decomposition in a multivariate setting. Our empirical results illustrate that there are indeed various patterns of dynamic relationships. The direction of causality appears to differ across countries. While investigating these interactive relationships under unexpected shocks, there is a one-way significant influence between the life insurance premium and long-run interest rate. These empirical findings serve as valuable applications not only for investors to diversify their risk away as well as to earn the abnormal return, but also for policy-makers to allocate resources more efficiently.

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1. Introduction

In mid-September 2008, the Federal Reserve felt it necessary to lend not just once but twice to American International Group (AIG) to keep the world's largest property–casualty insurance conglomerate afloat ([Harrington, 2009](#); [Litan, 2009](#)). Why did the Federal Reserve want to assist AIG through the

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financial turmoil? Reports conjecture if AIG were bankrupted, it would result in a serious shock over the global financial sectors. A failed AIG gives U.S. economy big shock and starts the global financial crisis, and U.S. government is aware of that the insurance market wields greatly influence over the world economy or over the worldwide financial sectors. In addition, according to previous studies, the real impact of insurance market on economic performance has been proved empirically (Chang & Lee, 2012; Chen, Lee, & Lee, 2012; Haiss & Sümegei, 2008; Han, Li, Moshirian, & Tian, 2010; Lee, 2013; Lee, Lee, & Chiu, 2013; Sümegei & Haiss, 2008; Ward & Zurbruegg, 2000). However, to date, the literature on investigating these vital linkages between insurance and other financial markets is less developed.

In the past few years, the role of insurance companies in financial markets has been transformed. The functions of insurance companies are turning to risk transfers (i.e., bearing risks as other economic agents who might stabilize their income streams, dampen volatility and enhance the performance of economic activity) and institutional investors in financial markets. Along with the financial innovation, the changes in the global financial environment have led to growing business opportunities for the insurance industry. Insurance companies have evolved new-style insurance contracts to enable investors to generate capital profits and meet their financial requirements for life. U.K.-style contracts, U.S. universal life contracts, Norwegian-style contracts and so on, as well as with-profit life insurance policies, which contain guarantees and embedded options, have recently raised considerable concerns in many countries (Kassberger, Kiesel, & Liebmann, 2008). Therefore, a well-developed insurance market will broaden the investment spectrum and extend investment maturities. Haiss and Sümegei (2008) demonstrate that the importance of the insurance-growth linkage was growing due to the increasing share of the insurance sector in the aggregate financial sector of a mature market-driven economy. Insurance companies are one of the biggest institutional investors in the stock, bond and real estate markets. When a government implements economic or financial policies, they must think of the influence of the insurance market to provide more social benefit in stable society.

In practice, few studies explore the dynamic interrelationships among the stock, bond and insurance markets and investigate the impact of unexpected shocks based on a developed multi-country comparison. The theoretical literature has mostly emphasized the potential complementarity or substitutability between stock and bond markets (Barsky, 1989; Campbell & Ammer, 1993; Shiller & Beltratti, 1992). Moreover, insurers differ in the amount of excess capacity that they hold and they face different state-level regulatory constraint (Jawadi, Bruneau, & Sghaier, 2009). But, the insurance market has hardly been investigated for its role in comparison with other financial markets. Nevertheless, total insurance premiums have been rapidly growing, even though previous studies do not focus on the insurance market,¹ from 1979 to 2007 in the U.S. and U.K. as shown in Fig. 1. The motivation is to discern whether there are directional dynamic relationships among those financial markets. More interestingly, by applying multi-country analysis, we not only observe some common phenomenon and special outcomes in the world, but also it offers us useful information – long-term domestic and international investors who diversify their portfolio risk away as well as speculative in regard to abnormal returns.

The purposes of this article are, first, to examine the causal relationships that potentially exist related to growth in the insurance industry, the stock returns, and long-term interest rate, and to discuss the complementary, substitutive or independent effects among these financial markets for developed countries. Besides, we attempt to provide meaningful information for domestic or international investors to construct their trading strategies for arbitrage, hedging or diversifying their risk away. Second, by describing the dynamic reactions among these markets under unexpected shocks we can provide some implications to policy-makers as well, such as those resulting from monetary or fiscal policies or the current financial crisis (domestic or international events). To accomplish these tasks, we first focus on time-series econometric framework within six developed countries (Canada, France, Japan, the United Kingdom and the United States) from 1979 to 2007, as well as provide detailed

¹ Adams, Andersson, Andersson, and Lindmark (2009) show that insurance services seem superior to bank lending and have given rise to economic growth in the twentieth century.

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