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The impact of corporate governance, regulatory differences and futures contracts on movements among portfolios of cross-listed equities: The case of Germany

Athanasios Koulakiotis[a,*], Nikos Kartalis[b], Katerina Lyroudi[c], Nicholas Papasyriopoulos[a]

[a] *Department of International and European Studies, University of Macedonia, 156 Egnatia Str., 54006 Thessaloniki, Greece*
[b] *Department of Accounting, Technological Educational Institute of Kozani, Greece*
[c] *Department of Accounting and Finance, University of Macedonia, 156 Egnatia Str., 54006 Thessaloniki, Greece*

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ABSTRACT

We test the impact of corporate governance effects on the stock price volatility of the DAX100 and find that these variables increase the volatility and decrease the error terms statistically significant. In addition, controlling for contemporaneous and next period's movements, we find that shocks can have a significant impact on the magnitude of stock return co-movements. In particular, our results show that the impact of the German mark/Euro and German bond price index futures shocks have a significant effect on spillovers, on contemporaneous and next period's co-movements related to firms or equities that cross-list on markets with different creditor bankruptcy protection rules. On the other hand, the impact of the German mark/Euro and the German stock price index shocks related to different shareholder protection rules have a smaller impact on both the next period's co-movements and contemporaneous co-movements among or between markets.

1. Introduction-cross-listing and market integration

The globalization of the marketplace for equity capital has boosted competition among major stock exchanges in order to capture the growing demand and supply of cross-border equity funds. Moreover,

* Corresponding author. Tel.: +30 2310891457.
E-mail addresses: akoulakiotis@gmail.com (A. Koulakiotis), alscav@otenet.gr (N. Kartalis), lyrkat@gmail.com (K. Lyroudi), papasur@uom.gr (N. Papasyriopoulos).

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due to globalization, both technological advances and financial deregulation have provided a simultaneous interdependence of stock markets around the world, resulting in international capital flow increase. These factors have increased the significance of domestic stock markets in the world market. However, the most important means for the integration of financial markets is the relatively recent trend of cross-listings as some companies want to list their shares not only in their domestic stock exchange, but also in other foreign stock exchanges.

All rational investors seem to prefer a regulatory system with practices that increase disclosure, high managerial accountability, ethical governance and provisions that protect minority shareholder rights. However, reality is different since markets are not all integrated towards such an 'ideal' regulatory system but there are different regulatory regimes among them and among firms. These regimes vary from those with very lenient regulations to those with strict regulations for their investors' protection and corporate governance factors.

When companies cross-list their shares they might face a different regulatory system in the foreign market they address, as opposed to the one they are used to. Therefore, in order to second list their shares, they have to adjust their disclosure statements and all the prerequisites that are needed accordingly.

Companies that come from a domestic market with strict legislation for investor protection tend to prefer or adjust easily to second-list in a foreign market with more relaxed standards.

Therefore, we wish to determine whether there is immediate adjustment by the companies that second-list in a foreign market or whether there are any incremental effects. The former means that co-integration should exist between the two markets (domestic and foreign). The latter implies that there is no immediate co-integration between the two examined markets. In this case, there might be disputes (agency problems) among the owners and the managers of the company on the decision to second-list and these conflicts may raise the agency costs which, in turn, result in hurting the company's stock price.

Longin and Solnik (1995) used interest rates or dividend yields, while Karolyi and Stulz (1996) used macroeconomic and futures variables as proxies. We use futures contracts and past returns based not only on the above studies, but also on the studies of Antoniou and Holmes (1995) and Antoniou et al. (1998), since they also found that futures have a significant impact on co-movements across markets.

Our objective is threefold. Firstly, we examine the degree of impact of two corporate governance variables on volatility and error terms of the German market. Secondly, we further examine the impact of regulatory differences (between European markets and the market of Germany) on volatility and error levels of transmission. Thirdly, we examine the impact of exogenous variables such as futures contacts on volatility and error transmission. Thus, the impact of variables in the first case is in a company level while the impact of the rest of the variables, in particular in the last two cases, is in a country level. Finally, we compare the impact of the above variables on volatility and error within the three cases to see whether or not volatility and error is transmitted equally as far as the information released is concerned. Therefore, we want to capture the dynamic degree of stock market integration within a firm or country level approach accounting for corporate governance variables, regulatory differences and exogenous factors in the German stock market.

Futures contracts, which are incorporated into the GARCH-BEKK model as economic shocks, affect different regulatory portfolios of cross-listed equities contemporaneously and incrementally. Therefore, the contribution of this paper is that it considers the next period's incremental effects for all the volatility spillovers and in our research these are derived in a different way from some other general equilibrium ARCH type models (e.g. Longin and Solnik, 1995). Our methodological framework incorporates volatility stock index levels, dynamic spillovers (volatility and error) and incremental information effects (volatility only), where we interpret the effects of futures contract shocks on volatility and error spillovers accounting for different regulatory regimes when cross-listed equities considered.

In the literature, there are several potential benefits from cross-listing, such as the cost of capital reduction, access to foreign capital markets, enhancement of investor base and liquidity, increase of transparency (visibility, exposure) and prestige. Stapleton and Subrahmanyam (1977), Errunza and Losq (1985), and Alexander et al. (1987) provided theoretical evidence that foreign listing can have a significant effect on stock price changes if markets were segmented. If markets were integrated,