Synchronicity and firm interlocks in an emerging market ☆

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ABSTRACT

Stock price synchronicity has been attributed to poor corporate governance and a lack of firm-level transparency. This paper investigates the association between different kinds of firm interlocks, control groups, and synchronicity in Chile. A unique data set containing equity cross-holdings, common individual owners, and director interlocks is used to map out firm ties and control groups. While there is a correlation between synchronicity and share ownership and equity ties, synchronicity is more strongly correlated with interlocking directorates. The presence of share directors is associated with either reduced firm-level transparency or increased correlation in firm fundamentals—due, for example, to joint resource allocation across the firms.

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1. Introduction

Synchronicity in returns data, controlling for correlation in firm fundamentals, is attributed to blurred boundaries between firms, reducing the firm-specific information incorporated in stock prices (Barberis, Shleifer, and Wurgler, 2005). Morck, Yeung, and Yu (2000) demonstrate how firms' returns are more synchronous in emerging economies than in developed economies. They suggest that the nature of relatively opaque activities within control pyramids contributes to synchronicity. Jin and Myers (2006) develop a model where synchronicity is a result of poor investor protection and a lack of transparency.

Common firm ownership, family control, business groups, and other means of exercising joint control over firm activities have recently attracted considerable attention in the finance and economics literature. La Porta, Lopez-de-Silanes, and Shleifer (1999) document the worldwide prevalence of jointly owned and controlled firms, and several theoretical and empirical papers examine the phenomenon of tunneling within groups, as described in Johnson, La Porta, Lopez-de-Silanes, and Shleifer (2000). Khanna and Yafeh (2007) discuss the importance of diversified business groups in emerging markets and suggest that, in some countries at least, groups are a response to information asymmetry and institutional voids. Morck and Nakamura (2007) describe how in the presence of network externalities and potential hold-up problems, coordination of activities across firms serves to avoid the market failures that prevent industrial growth. In this way, joint control can facilitate a "big push" of the kind described by Murphy, Shleifer, and Vishny (1989) within a privately owned economy.

Joint control across firms is the key mechanism through which coordination is achieved in these models. Much of the literature has focused on equity interlocks and ownership pyramids as the channel through which joint control is exercised, separating control from ownership in the case of large equity pyramids. The literature also demonstrates that firms are often tied in other ways, such as family ties and director interlocks which, while potentially less formal, are a frequently observed characteristic of groups in emerging markets. It seems reasonable to assert that when a particular individual, or the same family, is involved in the management of two or more firms, the coordination across those firms is more straightforward and potential hold-up mitigated. This assertion relates to the literature on power relationships and capital allocation. Rajan and Zingales (1998) suggest that relationships can substitute for formal contracts when capital is scarce relative to investment opportunities, and note that relationship-based systems suppress the price mechanism.

The goal of this paper is to investigate the relation between stock price synchronicity and joint control of firm activities. Following the literature on groups in emerging markets, we acknowledge that control can be exercised through various channels. We use a detailed data set on Chilean firms in 1996. To our knowledge, the data set is unique in a developing country setting as it contains information on the extent of equity ties, the names of common individual owners, and the names of common individual directors for pairs of a large number of listed and unlisted firms. The Santiago stock exchange had 270 listings during 1996, 52 of which were secondary listings. Our data on individual directors and owners include the 457 firms that were monitored by the financial regulatory authority, of which listed firms are a subset. We hence have a more comprehensive view of direct and indirect measures of joint control throughout the economy since the data allow us to map out ties between a large number of firms.

We construct several measures of the extent of firm-pair returns synchronicity and then test which types of ties are associated with increased synchronicity.[1] The firm-pair data also allow us to distinguish between groups of firms tied to each other through common ownership and groups tied through shared directors. Since our goal is to investigate the different channels through which joint control can be exercised, we map the Chilean firms in our data set into three types of networks within which all firms are either jointly owned or managed. Network membership is defined in turn by equity ties, individual ownership ties, and then by director interlocks. For the equity ties definition, we do not take a stand on the extent

of equity holding required for a firm to exert control. Since the mapping process reveals several structures where hierarchy levels are ambiguous, we use the more general phrase "equity network" rather than "equity pyramid" to refer to these mappings. Membership of equity pyramids, as typically defined, is identified in our process but not the relative position of each firm in the pyramid.

Using the network affiliations, we form firm-pair-level indicator variables telling us whether both firms in a pair are members of the same network. The differently defined networks reveal disparate groupings of firms within the economy. That is, pairs of firms in the same equity network can be in different director networks or owner networks, or in no individual level network, and vice versa. The data on the extent of the ties of each kind between a pair of firms, together with the variables indicating whether both firms are members of a common network, are the key independent variables under analysis.

Since an observation in our data set comprises a pair of firms, the errors are potentially correlated across pairs due to unobservable firm effects. We address this problem by adopting the non-parametric bootstrapping estimation method described in Section 4 to determine the significance of estimated coefficients. We also make an adjustment for long-run trends by detrending the firm-level returns data. If two firms tied to each other through equity ties, ownership, or directorship interlocks are more likely to share an overall trend for some unobserved reason, using data that include these trends would lead us to overestimate the degree of synchronicity attributable to the effects of the ties. There are reasons why the presence of an interlock could cause firms' fundamentals to be correlated, such as the increased likelihood of a supplier–customer relationship. There are also other reasons why any two firms' returns could be correlated regardless of whether a tie exists, but independently also make a tie more likely. For example, two firms may use the same inputs, or operate in the same geographic market. To attempt to take account of the fact that jointly controlled firms are more likely to share fundamentals even if the tie were not to exist, we control for common industry effects. We also attempt to control for synchronicity due to anticipated dividend flows from equity holdings; this adjustment is described in the Appendix.

We recognize that further unobserved factors could be associated with both interfirm ties and synchronicity. There is relatively little change in the nature of shared ownership and director interlocks over time, providing little variation to use as part of our identification strategy. We do, however, know the business group affiliation of each firm in the data set for 1996. Business groups are widely recognized and well monitored entities within the Chilean economy (Khanna and Yafeh, 2007) and group membership has been shown to impact firm performance (Khanna and Palepu, 2000). We assert that common group membership could well be correlated with unobservable factors related to synchronicity and to equity, owner, and director interlocks. By controlling for group membership, and then also looking within groups, we relate the synchronicity above that which is attributable to shared

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[1] Bertrand, Mehta, and Mullainathan (2002) investigate earnings tunneling in India by testing whether positive earnings spill over from firms at the bottom of a pyramid towards those at the top, while negative earnings do not. Our dependent variables are based on firm-level returns, which are predicted to take account of the expected value of all future spillover effects. In the presence of joint control, we expect both negative and positive returns shocks to affect tied firms by changing market expectations of their future value.