

Channeling Funds into the Group: IPO Pricing in Business Groups

Aharon Cohen Mohliver¹, Gitit Gur-Gershgorn^a

^a*Columbia University*

^b*Israeli Securities Authority, Ben-Gurion University of the Negev and Kiryat Uno Institute of Management*

Abstract

We demonstrate that business groups use financial intermediaries to boost the stock prices of affiliated firms in initial public offerings (IPO). Using a complete sample of all IPOs and all mutual funds in Israel during a four-year period, we find that the participation of mutual funds affiliated with the business group leads to economically significant overpricing for those IPOs. We show an increased likelihood of participation of mutual funds in the offerings of related firms and a rapid disposal of those stocks in subsequent trade. Our findings expand on the tunneling hypothesis by demonstrating that the transfer of resources can come from sources external to the group, such as assets managed by mutual funds, in a phenomenon we call “channeling.”

Keywords: Internal capital markets, business groups, mutual funds, IPO

JEL classifications: G23, G34

In the past decade there has been increasing interest in pyramidal business groups and in the ability of group owners to transfer assets from one firm in the pyramid to another. This phenomenon, dubbed “tunneling”¹ by Kogut and Spicer (1998); Johnson et al. (2000) can take many forms such as transfer pricing, transfer of goods at nonmarket prices and inflated payments for intangibles. Much of the research examined the internal capital markets in these groups yet the theoretical possibility of transferring resources from external sources into the group’s internal capital markets, an activity we refer to in this paper as “channeling” was not previously addressed.

Channeling funds from sources external to the group is fundamentally different from tunneling from firms within the group. In business groups where ownership is pyramidal the transfer of value in tunneling presents serious governance problems for firms at low tiers in the pyramid, where the divergence is great between cash flow rights and control rights. [See Almeida and Wolfenzon (2006a,b) and Morck et al. (2005) for a discussion of the relationship between lower-tier firms in a pyramidal group and incentives for tunneling.]² Unlike trades

¹The term *tunneling* was first used by Kogut and Spicer in 1998 and later by Johnson et al. to describe how assets mysteriously vanished from Czech corporations as if stifled through a tunnel.

²This view of the pyramidal group is a variation on principal agent theory (Jensen and Meckling (1976). Theory of the firm: Managerial behavior, agency costs and ownership structure. *Journal of Financial Economics* 3, 305-360), whereby the managers of a firm act to maximize the group owners utility and not the small shareholders utility (Morck and Yeung (2003). Agency Problems in Large Family Business Groups. *Entrepreneurship Theory and Practice* 27, 367-382.)

conducted from firms' own cash flows, trades conducted on funds managed by financial intermediaries such as mutual, trust, and pension funds can exhibit similar agency problems without a large divergence of control rights from cash flow rights, because the major shareholder of the company owns no portion of the funds being transferred. Furthermore, while tunneling negatively affects the value of the tunneling target, channeling from sources external to the group has limited financial implications for the value of the mutual fund managing companies and the resources accessed are vastly larger³. Channeling can therefore be viewed as an extension of the agency problem in mutual funds to business group firms who manage "other peoples money", and result in large benefit to the business group at the expense of savers.

We seek to shed light on the perseverance of business groups in developed economies, and to provide insights into the persistent underdevelopment of capital markets in these economies. We also verify assumptions made in previous research (e.g., Barca and Becht (2001), Ch. 9 and Leff (1978)) that institutional investors controlled by a business group act as "vehicles of power" for the controlling shareholder. We use mutual fund investment decisions in IPOs in which prices of the transactions and the participation of group managed funds are evident. We point to an interesting finding: ownership of financial intermediaries gives business groups the ability to go public with firms that are less profitable, yet they benefit from notably high prices on the stocks sold. This price increase is absorbed by all institutional investors who participate in IPOs generated from the business groups with affiliated financial intermediaries. In this way the business groups systematically weaken the efficiency of capital allocation in stock-exchange offerings.

Using a unique data set of all IPOs in the Israeli market over a four-year period, we show clear cases in which institutional investors belonging to a business group transfer funds from small investors to the group at high prices and subsequently incur large losses when selling the stocks. Because Israeli companies use the Dutch auction method to go public, increased participation at the bidding stage can support the demand for the IPO and drive prices up. Systematic behavior like this can create inefficiencies in the IPO market by allocating excessive resources to firms in business groups with financial intermediaries.

The contribution of this paper is threefold. First, it contributes to the literature on the transfer of value to firms within business groups and to the corporate governance literature by identifying a potentially significant problem arising from business group control over nonbank financial intermediaries. Second, the paper advances the discussion about how business groups can gain a persistent advantage in domestic stock markets. Third, from a welfare point of view it sheds light on how business groups' control over financial intermediaries can result in the misallocation of capital in the economy.

The paper proceeds as follows: Section 1 discusses the theoretical foundation of this study and the main hypothesis; Section 2 describes the data; Section 3 reports the main unconditional findings on institutional

³Clal financim LTD., one of the asset managers controlled by a business group, has close to 20 billion NIS under management, almost twice as much as the entire market value (and four times larger than the "free float" held by minority shareholders) of Celcom LTD, the largest company controlled by the same business group.

investors' IPO investment choices over the period in question; Section 4 reports the main results; and Sections 5 and 6 discuss the findings and offer conclusions.

1. Theoretical foundations

1.1. *Financial intermediaries in the business group*

Business groups are dominant and common in both developing and developed economies, as has been documented extensively (Barca and Becht (2001); Claessens et al. (2000); La Porta et al. (1999)). Most notably these groups have been observed to predominate in emerging economies where they are argued to mitigate underdeveloped markets, mainly capital allocation markets (Chang and Hong (2000); Khanna and Rivkin (2001); Khanna and Yafeh (2007)). Business groups often control mechanisms, like banks, insurance companies, and asset managing companies, through which they can achieve preferential access to capital.

Like all economic organizations, business groups are motivated to create superior access to capital and have been shown to use various ways to finance affiliated firms, some of which are assisted by the weaker regulation in these markets (La Porta et al. (1998)). The literature finds much evidence for internal dealings within groups: for example, Shin and Park (1999) find that investments made by firms within a business group are less sensitive to their own cash flow (compared to nongroup affiliated firms) but are highly sensitive to the cash flow of other firms in the group. They interpret this finding as evidence that internal capital markets exist within the groups. Chang and Hong (2000) show that, in Korea, various forms of internal transactions exist within groups, including debt guarantees, internal trade, and equity investments. Better access to capital is one of the unique advantages of the business group form of organizational control.

It is important to note that internal capital markets, despite creating better financing opportunities to affiliated firms, can decrease the overall capital allocation efficiency in the economy (Almeida and Wolfenzon (2006a)). Internal dealings such as capital allocation between firms, debt guarantee, and internal trade can work to the benefit of the group or the group owner by diverting funds from firms in which the owner has limited cash flow rights to firms in which its cash flow rights are greater. Almeida and Wolfenzon show that the choice of a pyramid structure for the business group may represent an attempt to maximize the potential cash flow gains of the ultimate owner (Almeida and Wolfenzon (2006b)). Divergence of cash flow rights from control rights has also been tied to agency problems at the firm level for firms controlled by a business group, where the controlling shareholder's interests diverge from minority shareholders as the cash flow rights of the major shareholder diminish (Morck et al. (2005)).

1.2. *Conflicts of Interests in Financial Intermediaries*

Extensive research has shown that financial intermediaries such as mutual funds, trust funds, insurance companies and banks can conduct business that benefits the firm at the expense of the savers. When information about systematic actions harming savers is not easily available, mutual funds vote disproportionately

with management (Davis and Kim (2007)), and banks have been shown to underwrite and then buy high-debt firms. Davis and Kim showed that even in a highly regulated and transparent market such as the U.S., a positive association exists between business ties and the propensity of mutual funds to vote with management. Research has shown that firm ties to the underwriter can affect analysts' recommendations, resulting in more optimistic reports on the firm (Michaely and Womack (1999)). Affiliated analysts are slower to downgrade recommendations and faster to upgrade them (Brien et al. (2005)) and stocks recommended by affiliated analysts underperform (Michaely and Womack (1999)). These findings suggest a bias that may result from conflicts of interest in the investment banks' roles as underwriter and as a provider of information and forecasts about the firm. [See Mehran and Stulz (2007) for a review of the conflicts of interest literature.] Even in the U.S., where markets are comparatively efficient, these biases are only partially discounted. Malmendier and Shanthikumar show that only large investors adjust their behavior to the underlying incentives of the analysts, while small investors seem oblivious to the conflicts of interest affiliated analysts face when issuing recommendations — a finding they attribute partially to the cost of obtaining the information (Malmendier and Shanthikumar (2007)). Ber, Yafeh and Yosha find that, in Israel, bank managed funds pay too much for bank underwritten IPOs at the expense of returns to investors (Ber et al. (2001)).

The transfer of wealth from mutual fund managing companies to the group is akin to the conflict of interest explored in the universal banking literature where commercial banks can use valuations as underwriters of companies to substitute debt of the firm to the bank with equity sold on an IPO. [See Drucker and Puri (2007) for a survey of the literature.] Again, information plays a critical role in the adjustments investors make to the prices of the IPO. The findings on commercial banks engaging in this transfer of debt to the public have been mixed, divided along the lines of information asymmetry and the cost of obtaining affiliation information on all sides of the transaction (Puri (1999)). Another stream of research that pertains to the conflicts of interests derived from ownership ties highlights the importance of ownership ties to the pricing of external finance is related lending, where banks issue loans for firms owned by the bank or the bank's owner at terms that are better than arms-length lending. La Porta et al. (2003) provide a test of related lending in Mexico.

The main intuition from the universal banking and related lending literature, and from the research showing agency in financial intermediaries, can also apply to the transfer of capital from funds managed by a business group to the group itself. Business groups that are active in the capital markets can use their control over mutual, trust, and pension funds to boost prices for their own IPOs, thus transferring capital from small outside investors into the group. Group owners can further use their financial intermediaries to reduce any possible threat to their control by holding parts of the control shares with trusted fund managers at no personal cost to the group owner.

2. Data

2.1. *The Israeli stock market and IPO auction system*

In 2003–2007 Israel was classified as an emerging economy. There were 627 companies listed in the Tel Aviv Stock Exchange (TASE), about 7% of which were companies dually listed in foreign exchanges. The average market cap of shares and convertibles traded in the TASE was USD 156 billion and the average daily trading volume was USD 300 billion. During these years there were between 795 and 1,167 mutual funds operating in Israel, managing USD 113 billion in assets.

During this period the Dutch auction system was used for initial public offerings (Hauser et al. (2006); Jagannathan and Sherman (2009)). Similar to France, Finland, New Zealand, Brazil, Argentina and Austria the auction system is a uniform price offer in which the lowest price that clears the bid is set for all participants (Jagannathan and Sherman (2009); Oh (2008)). Under Israeli regulations all IPOs have a two stage bid in which the underwriter can secure orders from institutional investors for up to 80% of the shares. All investors can participate in the bidding on the remaining shares. While the first stage includes maximum prices submitted by the mutual funds, the final price is determined in the second stage. If the underwriter fails to fulfill the 80% commitment in the first stage is viewed as a negative signal regarding the quality of the IPO. Conversely, oversubscription in the first stage (exceeding 80% of the number shares offer) sends a positive signal to investors participating in the second stage. Most IPOs are oversubscribed, which is a positive signal for the prices attached to the IPO by institutional investors. Information on all first stage commitments (price and quantity) is accessible for investors in the second stage.

2.2. *Data sources*

We used several sources to gather the data for our analysis. First we started with over 300 IPOs documented in the Tel Aviv stock exchange website, i.e., all offerings listed between January of 2003 and December 2007. From those we excluded all non-firm IPOs (ETF and RIT offerings). We then sorted the sample to isolate stock-only offerings. This allowed us to trace the amount of wealth transferred by observing the real prices of the stocks as established by the end of the first trading day. Out of the 116 firms in this sample, one firm had an anomalous return, exceeding 400% on the first day of trade. We found that this firm had issued an immediate report on the first day of trade, thereby causing the surge in the stock price. Because this information was not available for the funds in the bidding stage, we excluded this observation from our sample. In our sample there are 757 unique investments of 56 mutual funds in 28 firms that are fully controlled by a business group owner, eight of which belong to one of two business groups that own financial intermediaries. Although our analysis focuses on the decision to invest in an IPO by each mutual fund which greatly outnumber the number of IPOs this raises concerns that the small number of underlying IPOs might bias any estimation. We address this estimation concern in the analysis.

To identify the business groups we follow the existing literature on Israeli groups (Maman (1999, 2002)) and used the widely accepted Dun and Bradstreet guide, published annually by D&B Israel. The guide includes a breakdown of the core fundamentals of the 19 largest business groups in Israel. One possible difficulty with identifying ultimate owners based on heads of families is an incomplete mapping of the holdings of firms whose stocks are held by family members with different last names. To address this, we supplemented the guide by mapping the first-degree family members for each ultimate controlling family using news reports from the five largest newspapers in Israel. We searched a ten-year window, in which we found seven family members who had changed their last names (usually due to marriage).

The third data set we used was the holdings of mutual funds across time. These data are reported to the Securities Authority on a monthly basis and include the entire portfolio of each individual fund at the last day of trade of that month. From this data we identified the shares that each fund bought in an IPO and traced when the funds sold those shares.

Lastly, we downloaded from the Israeli Security Exchange website the daily closing price of stocks for all firms in the sample over a three-year period from the day of the IPO. Our goal here was to calculate the buy and hold returns of the funds and the first day access return, to which we refer here as underpricing.

3. Unconditional findings

3.1. Findings at the firm level

Although research done in the 1990s indicated that IPOs in Israel had a 4.5% positive return on the first day of trade (Kandel et al. (1999)), we find that during our sample the mean first day return centered close to zero. When parsing the sample to business group and nonbusiness group firms, we find that the nongroup IPOs have a zero mean first day return and business group firms have first day returns that are slightly negative yet not significantly different from zero. In this paper, we define positive first day returns as *underpricing* and negative first day returns as *overpricing*. The average overpricing for business group firms is 4.16% on IPOs of an average magnitude of 340 million NIS (about 85 million dollars), with a standard deviation of 8.81%. On average this translated to a net transfer of \$3.5 million from investors in funds to the group or group controlling family, compared to the price of the firm on the first day of trade.

Table 1 reports the main unconditional characteristics of firms issuing stock during the study period, according to the group ownership classification.

[Table 1 about here.]

[Table 1 (continued) about here.]

[Table 1 (continued) about here.]

We find that business groups tend to go public with firms that are larger and older than nongroup firms. Business groups' ability to finance their pre-IPO activity through the banking system might explain this finding. We also find that business group firms go public with higher debt ratios, which is consistent with this explanation. Nongroup firms have a highly skewed distribution of the amount of capital raised, and most issue stock for less than \$15 million.

3.2. *The investment level*

3.2.1. *Coding the fund-IPO pairs*

Because the purpose of this research is to explore the effects of ownership of business groups on mutual funds, we conduct the analysis at the investment level made by the mutual fund. We classify firms as belonging to a business group (BG), or independent (NBG).

We use the same classification scheme for identifying mutual fund ownership; depending on the ultimate owner, a mutual fund is classified as either BG or NBG. We conduct our analysis on two levels. First we divide the sample between BG and NBG ownership (see Table 1) and look at the issuing firm level. Then we code the BG-BG matrix such that the diagonal, where mutual funds investing in the IPO are owned by the *same group*, is coded as same group, and the off-diagonal, where investments are made by mutual funds in other groups, is coded as *different group* (see Table 2a and 2b). We defined *control* as the owner of the largest portion of voting shares, where no three other shareholders combined hold more voting shares. We employed a 25% cutoff, whereby no shareholder with less than 25% of the votes was considered a controlling shareholder.

[Table 2 about here.]

Classifying investments at the pair level allows us to observe the behavior with a fund-specific effect. Specifically the funds that belong to a business group can make investment decisions on all pair categories, whereas funds that don't belong to a business group can only invest in other group or nongroup IPOs.

3.2.2. *Unconditional findings at the investment level*

We now turn to the unconditional findings at the investment level. We examine the investment decisions of mutual funds within the universe of IPOs available for investment in the four year window. We find that the average overpricing per investment is more acute when funds invest in their own group. Same-group investment yields on average a negative first-day return of 6.33%. This cannot be explained by the poor ability of these funds to choose investments, because their investments in similar firms from other business groups yield a loss that is one fifth of that—only 1.42% for the first day of trade, which does not differ significantly from zero. Since several mutual funds invest in the same IPOs, the investment observations are not independent between categories. Given that all mutual funds face the same investment universe, this is informative at the fund's investment level. We confirm the direction of the findings in these models when

we control for clustering at the firm level; at that point the size of the negative first-day return drops to 5.16% but remains significant.

[Table 3 about here.]

Overpricing indicates that individual investors bought equity in the firm at a higher price than they would have paid had they bought the shares at the end of the first day of trade. An alternative view is that investors might assess the firm as a good long-term investment and secure the shares at the IPO, disregarding the first day of trade. The data does not support this argument. Same-group investments lose on average 13.99% in the first three months of trade, and 28.39% in the first six months, compared with a 1.52% loss for investments in different business groups for the three-month horizon, and 13.5% for six months. The share price trajectory for IPOs in which same-group mutual funds invested is distinctly inferior to that of all other categories.

[Figure 1 about here.]

Overall these findings support the idea that business groups channel funds into the group from outside investors. When mutual funds invest in IPOs from their own group they make poor returns on their investments, in effect transferring funds from small investors in mutual funds to firms in the business group. These findings are consistent with the universal banking research showing that banks underwrite firms that share ownership with them at high prices (Puri (1999)). These findings also show that the internal capital markets are not limited to financing affiliated firms through bank ownership. Groups can tap directly into the savings managed in mutual funds, with implications for the efficiency of capital allocation by financial intermediaries.

3.3. Alternative explanations: asymmetric information and long-term investment strategy

Next we rule out the possibility that these investments are made as a long-term strategy based on superior information by the affiliated funds. We use the same classification scheme for the fund holding data. If this were a strategic action intended to support the price of an IPO, we would expect mutual funds that buy in the same-group IPOs to sell the shares sooner than funds that invest as a long-term strategy. We plot the holdings of mutual funds over time for all categories of IPOs.

[Figure 2 about here.]

The findings are striking. The funds that participate in their own groups' IPO quickly dispose of the shares in subsequent trade and sell off more than 65% of the shares within the first month after the IPO. Funds that do not participate in their own groups' IPO hold on to those same stocks for much longer. The mutual funds that belong to the business group hold non-group IPOs much longer. The disposal of different

groups' stocks by those funds is swift, but less so than the disposal of stocks bought on their own group's IPO.

When calculating the annualized losses of the funds on these investments we find that same-group investments generated a net loss of 34% by the time the stocks bought at the IPO were completely sold. This constitutes the highest loss of all possible pairs, and the only one that is significantly negative. Indeed, the returns of the firms issued by business groups that control financial intermediaries are negative throughout the period, making it virtually impossible to sell those shares at a profit. Same-group funds do, however, minimize their losses on the same-group IPOs compared to nongroup funds. Although unable to make profits on investments in their own groups, business group funds sold at an average profit of 15.5% when investing in business groups without internal financial intermediaries, and at a 14% profit when investing in nongroup firms. Nongroup fund managers made an average profit of 19% on their investments.

[Table 4 about here.]

4. Models and analysis

We test whether there is a systematic advantage to business groups when issuing stocks using several models of investment choices by mutual funds. First we collect the pre-IPO financial statements for all firms in our sample to account for any systematic differences among business group firms. We then analyze the activity pattern at the investment decision level of the mutual fund, when holding period and overall return on investment are constant. We then run the same models on the subsample of mutual funds that belong to business groups with IPO activity during our time period. We supplement this analysis by constructing a data set of all mutual funds operating in the IPO market throughout the period and modeling the likelihood of their participation in an IPO using the *different group* and *same group coding*.

4.1. Main results

During the road show, mutual funds are exposed to the company's financial statements as well as information about management, future strategy, markets, and opportunities for the firm. The information available on the companies is summarized in the financial statements just prior to the IPO. We analyze this in a similar way to Pagano et al. (1998) analysis of initial public offerings in Italy and Ber et al. (2001) analysis of IPOs in Israel, to see if there is a systematic difference between business group and nonbusiness group firms. We find that business group firms are bigger and remain incorporated for a longer time without raising capital from the stock markets. Firms that belong to business groups that also control financial intermediaries are almost two standard deviations less profitable than the firms in our sample, which is both statistically and economically significant. The results, controlling for industry and year of IPO, are reported in Table 5.

[Table 5 about here.]

Both long- and short-term unconditional performance of the stocks behave as predicted in the literature. Profitability increases the above-market return, leverage depresses it, and bigger firms have smaller above-market return growth (Fama and French (1993)).

In all models, though business group firms perform better in the short run, IPOs issued by groups owning financial intermediaries that participated in the IPO exhibit poor performance. The results for three, six, and 12-month performance are reported in Table 6, and the stock price trajectory is reported in Table 7. To exclude the first day overpricing effect and the high volatility of the first few days of trade, we measure the stock performance starting five days after the IPO. In the long run there is no significant difference between the performance of firms belonging to business groups and that of business groups with financial intermediaries, and both are below market.

[Table 6 about here.]

[Table 6 (continued) about here.]

[Table 6 (continued) about here.]

In Table 7 we model the underpricing, capturing the amount that was overpaid for the stocks by the institutional investors that bid on the IPO. Each fund sees all IPOs and can choose whether to bid in that offering and at what price. We find that the variables *business group* and *same group* account for negative underpricing (overpricing) of 1.79% and 5.75% at high significance levels ($p < 0.001$ for business group IPOs). Note that by definition the variable *same group* only refers to mutual funds that are managed by the same business groups as the firm whose stocks they are buying.

[Table 7 about here.]

Together, these findings suggest that mutual funds invest in firms belonging to their own group at high prices, which are then translated into realized losses. Markets price these firms lower than the IPO price up to one year after the IPO. This prevents the funds from exiting their investments at a profit, and indeed these investments generate a significant loss to the funds at the point of sale both in raw-market-adjusted returns and in risk-adjusted returns.

4.2. Likelihood of funds to participate in an IPO

We now examine the likelihood of funds to invest in an IPO. To support the IPO price and facilitate the channeling of funds from the general public to the group, mutual funds need to be substantially more active in IPOs from their own group. Unconditionally, the frequency table reported in Table 8 shows that business group funds are more likely to participate in any business group IPO, and almost twice as likely to participate in IPOs from their own group compared to nongroup IPOs.

[Table 8 about here.]

Participating in an IPO sends a signal for the quality of the issuing. Since IPOs are issued through an auction in the stock market, participation also helps fill the demand in the first auction stage, which drives up the share price for the first stage of the bid.

We use a data set that includes all mutual funds that were active during each IPO to model the likelihood of participation in an IPO. The results are reported in Table 9 and are consistent with the unconditional frequency table. Same-group ownership increases the likelihood of participating in an IPO.

[Table 9 about here.]

The models show that funds are more likely to invest in their own group, and furthermore that the same-group variable is highly significant and has an effect second only to the investment policy of the fund.

5. Discussion

The question of whether business groups are paragons or parasites is far from being resolved. On that question, the endogeneity of small stock and bond markets in business group economies plays a critical role in researching business groups and their influence on the macroeconomic environment.

Research identifies theoretical arguments for both positive and negative effects of business groups on the way markets operate in countries where they dominate a large portion of the national economy. The main argument on the positive side focuses on how internal capital markets replace inefficient external markets, allowing national economies to develop faster and leapfrog the stages in which external capital allocation through banks and capital markets is inefficient (Khanna and Palepu (2000); Khanna and Yafeh (2007); Shin and Park (1999)). Conversely, the increased power and political influence of second and third generation group owners who may be less talented than the founder, as well as a general entrenchment of business groups, may inhibit the development of markets external to the group and slow economic growth (Khanna and Yafeh (2007); Morck et al. (1998, 2005)). Notably, pyramidal groups create a wedge between control rights and cash flow rights, giving the major shareholder incentive to stifle resources from lower-tier firms (Johnson et al. (2000)). This phenomenon alone can impair the development of efficient external capital markets even if tunneling is priced correctly in subsequent trade.

But what happens when the market for allocation of capital is itself influenced by business groups? The use of financial intermediaries by controlling shareholders to accomplish the transfer of wealth gives rise to concerns, new to the literature, about the level of development of capital markets in business group dominated economies. Control over financial intermediaries allows groups to create disparate access to capital and distort the efficiency of capital allocation by financial markets. Affiliated players in the local

stock markets can also support the controlling shareholder during takeover threats and transfer even more funds during repurchases of shares.

We find that when mapping the investments made by mutual funds in IPOs there is a clear pattern of support of affiliated mutual funds in their own group offerings, and possibly cooperation between groups. Mutual funds are much more likely to invest in their own group IPO, despite the fact that prices are on average 6.33% higher than what the market evaluates the firm stock to be; the funds subsequently dispose of those shares quickly and at distinct and consistent losses. This pattern is not conceptually limited to mutual funds. It can come into play when groups manage investment portfolios in pension funds, provident funds, life insurance policies, and any other mechanism in which large sums of money are managed by a group whose interests are not aligned with those of individual investors.

The fact that mutual funds in Israel are shown to act strategically to the benefit of the business group at the expense of individual savers does not preclude individual savers also enjoying benefits from investing in a fund that is managed by a business group. For example, when business groups control a large enough portion of the economy, and when group firms are highly connected through cross holdings, they are often perceived as “too big to fail,” creating implicit insurance to the individual savers in those funds. In addition, groups might have superior information on related businesses and enjoy better access to superior management talent. We do not attempt to analyze the net effect of investing in business group managed funds. The findings suggest that even if the individual savers themselves rationally choose to invest in business group managed funds, this can result in the misallocation of capital when these funds participate in trades that specifically benefit the group.

6. Conclusion

This study reveals how business groups can use financial intermediaries such as mutual funds to channel funds into the group during IPOs. We start our investigation by analyzing mutual fund activity according to the classification scheme of different-group and same-group pairs. Using this scheme we show consistent evidence that funds belonging to a business group are more likely to participate in IPOs originating from their own group; that these IPOs are significantly overpriced; and that these investments show below-market performance in the short run and then correct to performance that is not significantly different from that of other business group firms. We further examine the return made on these investments by the same-group funds and find that they generate a negative return on investment that is both statistically and economically significant. These funds dump the shares they bought at the IPO at a staggering speed after the stock has begun to trade.

This evidence shows that business groups’ control over financial intermediaries gives them preferential access to external capital markets, enables them to issue stock at high prices, and diverts funds from the

general public's savings into the group's internal capital markets. The unconditional findings hold when controlling for firm and fund characteristics, year-fixed effect, and market conditions.

Research has shown that business groups transfer funds between firms in the group in an internal capital market. Our findings show that these funds originate not only from activities conducted in market conditions, but also by channeling resources external to the group, such as savings in mutual funds.

References

- Almeida, H., Wolfenzon, D., 2006a. Should business groups be dismantled? the equilibrium costs of efficient internal capital markets. *Journal of Financial Economics* 79, 99–144.
- Almeida, H., Wolfenzon, D., 2006b. A theory of pyramidal ownership and family business groups. *The Journal of Finance* 61, 2637–2680.
- Barca, F., Becht, M., 2001. *The control of corporate Europe*. Oxford University Press, Oxford.
- Ber, H., Yafeh, Y., Yosha, O., 2001. Conflict of interest in universal banking: bank lending, stock underwriting, and fund management. *Journal of Monetary Economics* 47, 189–218.
- Brien, P., McNichols, M., Lin, H., 2005. Analyst impartiality and investment banking relationships. *Journal of Accounting Research* 43, 623–650.
- Chang, S., Hong, J., 2000. Economic performance of group-affiliated companies in Korea: intragroup resource sharing and internal business transactions. *The Academy of Management Journal* 43, 429–448.
- Claessens, S., Djankov, S., Lang, L., 2000. The separation of ownership and control in east Asian corporations. *Journal of Financial Economics* 58, 81–112.
- Davis, G., Kim, E., 2007. Business ties and proxy voting by mutual funds. *Journal of Financial Economics* 85, 552–570.
- Drucker, S., Puri, M., 2007. Banks in capital markets. In: Eckbo, E. (Ed.), *Handbooks in finance*. North-Holland Publishers, pp. 189–232.
- Fama, E., French, K., 1993. Common risk factors in the returns on stocks and bonds. *Journal of Financial Economics* 33, 3–56.
- Hauser, S., Yaari, U., Tanchuma, Y., Baker, H., 2006. Initial public offering discount and competition. *Journal of Law & Economics* 49, 51.
- Jagannathan, R., Sherman, A., 2009. Why have IPO auctions failed the market test, unpublished.
- Jensen, M., Meckling, W., 1976. Theory of the firm: managerial behavior, agency costs and ownership structure. *Journal of Financial Economics* 3, 305–360.
- Johnson, S., Porta, R., Lopez-de-Silanes, F., Shleifer, A., 2000. Tunneling. *The American Economic Review* 90, 22–27.
- Kandel, S., Sarig, O., Wohl, A., 1999. The demand for stocks: an analysis of IPO auctions. *Review of Financial Studies* 12, 227–247.
- Khanna, T., Palepu, K., 2000. Is group affiliation profitable in emerging markets? an analysis of diversified Indian business groups. *The Journal of Finance* 55, 867–891.
- Khanna, T., Rivkin, J., 2001. Estimating the performance effects of business groups in emerging markets. *Strategic Management Journal* 22, 45–74.
- Khanna, T., Yafeh, Y., 2007. Business groups in emerging markets: paragons or parasites? *Journal of Economic Literature* 45, 331–372.
- Kogut, B., Spicer, A., 1998. Chains of embedded trust: Institutions and capital market formation in Russia and the Czech Republic. Working paper No. 291, William Davidson Institute, Ann Arbor, MI.
- La Porta, R., Lopez-De-Silanes, F., Shleifer, A., 1999. Corporate ownership around the world. *The Journal of Finance* 54, 471–517.
- La Porta, R., Lopez-de-Silanes, F., Shleifer, A., Vishny, R., 1998. Law and finance. *The Journal of Political Economy* 106, 1113.
- La Porta, R., Lopez-de-Silanes, F., Zamarripa, G., 2003. Related lending*. *Quarterly Journal of Economics* 118, 231–268.
- Leff, N., 1978. Industrial organization and entrepreneurship in the developing countries: the economic groups. *Economic Development and Cultural Change* 26, 661.
- Malmendier, U., Shanthikumar, D., 2007. Are small investors naive about incentives? *Journal of Financial Economics* 85, 457–489.
- Maman, D., 1999. Research note: Interlocking ties within business groups in Israel — a longitudinal analysis, 1974–1987. *Organization Studies* 20, 323–339.
- Maman, D., 2002. The emergence of business groups: Israel and South Korea compared. *Organization Studies* 23, 47.
- Mehran, H., Stulz, R., 2007. The economics of conflicts of interest in financial institutions. *Journal of Financial Economics* 85, 267–296.
- Michaely, R., Womack, K., 1999. Conflict of interest and the credibility of underwriter analyst recommendations. *The Review of Financial Studies* 12, 653–686.
- Morck, R., Stangeland, D., Yeung, B., 1998. Inherited wealth, corporate control, and economic growth: the Canadian disease. In: Morck, R. (Ed.), N. B. E. R. National Bureau of Economic Research conference. N. B. E. R. working paper No. W6814.
- Morck, R., Wolfenzon, D., Yeung, B., 2005. Corporate governance, economic entrenchment, and growth. *Journal of Economic Literature* 43, 655.
- Morck, R., Yeung, B., 2003. Agency problems in large family business groups. *Entrepreneurship Theory and Practice* 27, 367–382.
- Oh, P., 2008. A view of the Dutch IPO cathedral. In: *Entrepreneurial Business Law Journal*. No. 2008-28 2 in *Legal Studies Research Paper Series*. University of Pittsburgh.
- Pagano, M., Panetta, F., Zingales, L., 1998. Why do companies go public? an empirical analysis. *Journal of Finance* 53, 37.
- Puri, M., 1999. Commercial banks as underwriters: implications for the going public process. *Journal of Financial Economics* 54, 133–163.
- Shin, H., Park, Y., 1999. Financing constraints and internal capital markets: evidence from Korean ‘chaebols’. *Journal of Corporate Finance* 5, 169–191.

Table 1: Characteristics of firms issuing stocks

Firm characteristics are reported for all 115 firms in the sample. Industry classification is according to ISA regulations on 7 major industry sectors. IPO characteristics include quality signals such as: whether the IPO papers included a specific designation for the proceedings (designated proceedings); whether stocks were offered separately or as a bundle with bonds (stock + bond); whether the underwriter committed to buy in the IPO; and the level of institutional commitment in the IPO prior to the closing day bid. General IPO characteristics are the amount of funds raised (proceeds); first day of trade data; and short, medium, and long term stock performance. Market capitalization and IPO proceeds are in millions of NIS. Trading volume is the daily trading volume of the stock in thousands of NIS.

Variable	Non business group firms			
	n=87			
	Percentage of companies			
Investment holding companies	5.75%			
Industrial companies	43.68%			
Commerce	24.14%			
Real estate	24.14%			
Banking and insurance	0.00%			
IPO includes bonds	66%			
	Mean	Std dev	Minimum	Maximum
Firm age	14.20	12.15	2.00	68.00
Underwriter commitment	0.24	0.11	0.02	0.58
Institutional inv commitment	0.74	0.13	0.30	0.90
Institutional in results (PostBid)	0.73	0.14	0.25	0.90
IPO proceeds equity only	65.33	54.38	16.30	360.00
IPO proceeds total	89.91	112.26	0.00	860.00
Market capitalization first day	193.01	211.30	24.00	1,472.06
First day underpricing	0.00	0.31	-0.56	1.94
First day trade volume	4,119,265.68	8,693,605.60	2,616.00	52,342,434.00
3 month return	-0.05	0.19	-0.43	0.82
3 month average trade volume	244,494.58	258,236.80	7,883.94	1,143,595.00
6 month return	-0.07	0.30	-0.63	1.50
6 month average trade volume	228,491.17	299,947.40	14,209.73	1,616,309.29
12 month return	-0.18	0.38	-0.93	1.11
12 month average trade volume	206,433.46	279,347.11	9,202.74	1,479,886.88

Table 1: (continued)

Firms belonging to business groups with no financial intermediaries				
Variable	n=20			
	Percentage of companies			
Investment holding companies	5.00%			
Industrial companies	20.00%			
Commerce	25.00%			
Real estate	40.00%			
Banking and insurance	10.00%			
IPO includes bonds	50.00%			
	Mean	Std dev	Minimum	Maximum
Firm age	24.70	21.03	2.00	73.00
Underwriter commitment	0.25	0.12	0.07	0.50
Institutional inv commitment	0.72	0.14	0.38	0.80
Institutional in results (PostBid)	0.70	0.14	0.38	0.80
IPO proceeds equity only	145.76	130.06	21.70	408.80
IPO proceeds total	202.98	237.35	21.69	911.25
Market capitalization first day	581.33	631.57	66.72	2,296.49
First day underpricing	-0.04	0.09	-0.19	0.23
First day trade volume	5,832,271.13	6,397,066.28	17,958.60	20,390,464.84
3 month return	-0.02	0.14	-0.34	0.25
3 month average trade volume	521,784.37	464,710.22	19,660.93	1,799,590.09
6 month return	-0.07	0.21	-0.56	0.30
6 month average trade volume	493,220.01	468,627.67	12,564.77	1,748,365.38
12 month return	0.00	0.41	-0.54	0.81
12 month average trade volume	601,992.44	749,652.84	19,311.37	3,175,110.10

Table 1: (continued)

Firms belonging to business groups with financial intermediaries					
n=8					
Variable	Percentage of companies				
Investment holding companies	5.00%				
Industrial companies	20.00%				
Commerce	25.00%				
Real estate	40.00%				
Banking and insurance	10.00%				
IPO includes bonds	50.00%				
	Mean	Std Dev	Minimum	Maximum	
Firm age	30.25	27.66	6.00	87.00	
Underwriter commitment	0.26	0.14	0.10	0.50	
Institutional inv commitment	0.74	0.14	0.50	0.90	
Institutional in results (PostBid)	0.74	0.14	0.50	0.90	
IPO proceeds equity only	239.43	272.57	24.10	878.60	
IPO proceeds total	474.48	574.80	24.10	1,678.60	
Market capitalization first day	1,148.95	1,667.29	69.65	5,071.59	
First day underpricing	-0.06	0.07	-0.17	-0.01	
First day trade volume	40,977,238.58	95,746,701.00	168,164.30	276,208,490.00	
3 month return	-0.08	0.07	-0.24	0.00	
3 month average trade volume	1,685,770.21	3,200,653.39	128,823.86	9,441,492.27	
6 month return	-0.05	0.31	-0.35	0.49	
6 month average trade volume	1,267,250.38	2,182,326.77	77,685.80	6,469,503.71	
12 month return	0.16	0.92	-0.67	2.12	
12 month average trade volume	1,060,465.27	1,650,369.64	42,398.03	4,953,449.67	

Table 2

(a) Coding for pairs of mutual fund — IPO firm combination

Ownership of mutual fund	Ownership of firm issuing stock		
	BG	BG	NBG
BG	BG-BG	BG-NBG	
NBG	NBG-BG	NBG-NBG	

(b) Coding for the BG-BG pair

Ownership of mutual fund	Ownership of firm issuing stock		
	BG_i	BG_i	BG_j
BG_i	same group	different group	
BG_j	different group	same group	

Table 3: Characteristics of investments made by mutual funds according to the type of investment (nongroup, different group, same group)

Investment characteristics are reported for all 2124 combinations of IPO-mutual fund. First we report the indicator variables, then the continuous variables, and finally the stock market variables at one day, 3, 6, and 12 months after the IPO. IPO characteristics include quality signals such as: whether the IPO papers included a specific designation for the proceedings (designated proceedings); whether stocks were offered separately or as a bundle with bonds (stock + bond); whether the underwriter committed to buy in the IPO; whether the fund was managed by one of the underwriter of the IPO or the leading underwriter; and the level of institutional commitment in the IPO prior to the closing day bid. General IPO characteristics are the amount of funds raised (proceeds); first day of trade data; and short, medium, and long term stock performance. IPO proceeds and market capitalizations are in millions of NIS. First day return is presented as the total first day return for the IPO, the first day return weighted by the mutual fund's share of the total commitment and the first day return in monetary terms (thousands of NIS).

Source	Non business group investors		Investing in BG firm		Investing in NBG firm		Investing in different BG firm		Investing in same BG firm		Same BG-different BG difference in means				
	Investing in NBG firm n = 812	Mean 65%	SD 0.31	Investing in BG firm n = 403	Mean 91%	SD 0.09	Investing in NBG firm n = 831	Mean 63%	SD 0.41	Investing in same BG firm n = 41	Mean 73%	SD 0.05	t-statistic DF	P value	
Prospectus includes designation for proceeds															
Include bonds		70%		67%		0.11		73%		85%		0.04	-6.93	128	0.00
Fund linked to lead underwriter		19%		6%		0.31		18%		73%		0.24	-1.98	45	0.05
Fund linked to non lead underwriter		29%		27%		0.43		17%		0%		0.73	-0.96	43	0.34
First day underpricing	8,140,948	13,982,589	43,494,982	83,599,112	7,439,451	12,821,056	34,988,503	76,215,254	35,548,774	57,106,866		0.06	0.57	0.95	
3 month excess return	330,346	297,210	1,901,012	2,774,989	331,287	294,312	1,594,045	2,534,049	1,785,510	1,958,460		0.58	56	0.57	
6 month excess return	322,584	363,152	1,475,261	1,892,515	295,980	329,905	1,246,162	1,735,749	1,490,834	1,381,676		1.05	55	0.30	
12 months trade volume	298,565	360,337	1,297,474	1,468,486	260,325	309,810	1,119,900	1,361,118	1,291,660	1,049,823		0.96	56	0.34	

Table 4: Return on investments made on the IPO stocks

Significant sale was defined as a sale of 50% or more of the stocks purchased during the IPO. Return was calculated as the price difference between purchase price at the IPO and average sales price throughout the period divided by the price paid, annualized. Returns that were higher than 100% and lower than 50% were excluded. Any single fund can have multiple investments during the period. t tests were conducted for differences in means. Where F tests showed difference in distributions we conducted a two sample t test.

Investor	Firm	Mean		Statistics			
		NBG	BG	t Value	$Pr > t $	F Value	$Pr > F$
Investor	NBG	9%	15%	-1.76	0.079	1.93	< 0.0001
	BG	8%	17%	-1.89	0.06	1.06	0.696
Statistics	t Value	0.3	-0.4				
	$Pr > t $	0.7633	0.6912				
	F Value	1.91	1.93				
		$Pr > F$	< 0.0001	< 0.0001			
Same Group			-34%				
		t Value NBG-BG	6.04				
		$Pr > t $	< 0.0001				
Statistics		F Value NBG-BG	1.58				
		$Pr > F$	0.2484				

Table 5: Conditional effects of business groups on initial public offerings

Accounting measures are reported in the IPO papers submitted to the Tel Aviv stock exchange for the quarter prior to the IPO date and the prior year. Age is the age of the firm since first incorporated; market capitalization is reported in millions of NIS as the first day of trade market capitalization of the firm; quick ratio is the cash + cash equivalent assets divided by current liabilities; liabilities to capital are the firm's total liabilities divided by the capital invested in the firm; gross profit to assets is the firm's sales minus cost of goods sold divided by its assets reported in millions of NIS. We include industry and time variables to control for "hot IPO markets" and industry specific effects.

	Age		Market cap		Quick ratio		Financial leverage		Gross profit / assets	
	(1)	(2)	(1)	(2)	(1)	(2)	(1)	(2)	(1)	(2)
Intercept	13.862** (5.924)	14.260** (6.184)	-8.558 (196.325)	115.244 (200.093)	-1.174 (0.738)	-0.931 (0.759)	3.966 (46.745)	14.257 (48.286)	0.155 (0.134)	0.101 (0.135)
Business group firm	15.638** (3.735)	15.010** (4.593)	706.977** (123.769)	512.039** (148.615)	0.705 (0.527)	0.339 (0.596)	-66.102* (33.372)	-81.619** (37.910)	-0.078 (0.098)	0.001 (0.105)
Same Group		1.782 (7.525)		553.538** (243.483)		1.194 (0.918)		50.632 (58.443)		-0.321* (0.170)
R-Square	0.1732	0.1737	0.3104	0.3431	0.1725	0.1862	0.1223	0.1288	0.2485	0.279
n	116	116	116	116	116	116	116	116	116	98
Controlling for industry and year fixed effect										

Standard errors in parentheses

*** $p < 0.01$, ** $p < 0.05$, * $p < 0.1$

Table 6: Returns on investments in IPO

Performance data are the market adjusted returns of the firm's stock at the 63, 125 and 250 trading days interval corrected for first day return (first 5 days of trade excluded). IPO size is the value of stocks and bonds sold at the IPO. Accounting measures are reported in the IPO papers submitted to the Tel Aviv stock exchange for the year prior to the IPO date. Market capitalization is the first day of trade market capitalization of the firm taken from the stock exchange daily trading data reported in millions of NIS; quick ratio is the cash + cash equivalent assets divided by current liabilities; liabilities to capital are the firm's total liabilities divided by the capital invested in the firm; gross profit to assets is the firm's sales minus cost of goods sold divided by its assets. Industry dummies are included according to TASE industry classification. To control for time effects of issuing we included dummy variables for the year of IPO. Standard errors are corrected for clustering.

VARIABLES	(1) Above market return on first 3 trading months	(2) Above market return on first 3 trading months	(3) Above market return on first 3 trading months
Business group firm		2.188** (1.102)	2.373** (1.115)
Same group			-4.455*** (0.822)
IPO size	0.00649*** (0.00131)	0.00526*** (0.00152)	0.00540*** (0.00151)
Market cap	-0.00504*** (0.000412)	-0.00539*** (0.000431)	-0.00541*** (0.000432)
Constant	-5.538*** (0.932)	-5.456*** (0.929)	-5.467*** (0.930)
Observations	2,174	2,174	2,174
R-squared	0.140	0.142	0.143

Robust standard errors in parentheses

*** $p < 0.01$, ** $p < 0.05$, * $p < 0.1$

Table 6: (continued)

VARIABLES	(4) Above market return on first 6 trading months	(5) Above market return on first 6 trading months	(6) Above market return on first 6 trading months
Business group firm		-12.58*** (1.491)	-12.58*** (1.509)
Same group			0.0338 (2.486)
IPO size	-0.0101*** (0.00276)	-0.00301 (0.00273)	-0.00301 (0.00272)
Market cap	-0.00171* (0.000959)	0.000283 (0.000819)	0.000283 (0.000818)
Constant	-1.315 (1.694)	-1.785 (1.645)	-1.785 (1.645)
Observations	2,174	2,174	2,174
R-squared	0.144	0.169	0.169

Robust standard errors in parentheses

*** $p < 0.01$, ** $p < 0.05$, * $p < 0.1$

Table 6: (continued)

VARIABLES	(7) Above market return on first 12 trading months	(8) Above market return on first 12 trading months	(9) Above market return on first 12 trading months
Business group firm		-8.630*** (2.845)	-8.781*** (2.864)
Same group			4.035 (5.760)
IPO size	-0.0656*** (0.00413)	-0.0606*** (0.00466)	-0.0607*** (0.00466)
Market cap	0.0103*** (0.00138)	0.0123*** (0.00141)	0.0124*** (0.00141)
Constant	3.559* (2.104)	2.771 (2.105)	2.752 (2.105)
Observations	1,949	1,949	1,949
R-squared	0.316	0.320	0.320

Robust standard errors in parentheses

*** $p < 0.01$, ** $p < 0.05$, * $p < 0.1$

Table 7: First day return on investments by mutual funds

Performance data are the above market returns of the firm's stock at the end of the first day of trade. IPO size is the value of stocks and bonds sold at the IPO. Accounting measures are reported in the IPO papers submitted to the Tel Aviv stock exchange for the quarter prior to the IPO date and the prior year. Market capitalization of the firm (in millions of NIS) taken from the stock exchange daily trading data five days after the initial offer starts getting traded, not reported in the table are: quick ratio measured as the cash + cash equivalent assets divided by current liabilities, liabilities to capital measured as the firm's total liabilities divided by the capital invested in the firm, gross profit to assets which is measured as the firm's sales minus cost of goods sold divided by its assets. Industry dummies are according to TASE industry classification. To control for time effects of issuing we included dummy variables for the year of IPO.

VARIABLES	(1) First day return	(2) First day return	(3) First day return
Same group			-3.364*** (0.741)
Business group firm		-1.917*** (0.602)	-1.794*** (0.597)
IPO size	-0.0234*** (0.00121)	-0.0226*** (0.00125)	-0.0224*** (0.00124)
Market cap	0.0103*** (0.000459)	0.0106*** (0.000467)	0.0106*** (0.000465)
Observations	2,174	2,174	2,174
R-squared	0.178	0.181	0.182

Robust standard errors in parentheses

*** $p < 0.01$, ** $p < 0.05$, * $p < 0.1$

Table 8: Ultimate ownership and participation in an IPO

We measure the frequency of a fund participating in an IPO by constructing a set of all mutual funds that existed on any given IPO date and counting the number of IPOs in which they participated in each of the table cells, then dividing this number by the total IPOs in each cell. NBG is a nongroup owner, BG_i and BG_j are business group ownerships such that when BG_j fund invests in BG_j firm we call that pair “same group.” When BG_i invests in BG_j ’s IPO we refer to the observation as “different group.”

		Ownership of firm issuing stock	
		NBG	BG_j
Ownership of mutual fund	NBG	13%	16%
	BG_i	17%	23% (“different group”)
	BG_j	17%	31% (“same group”)

Table 9: Ultimate ownership and the likelihood of participation in an IPO

Using a sample of all mutual funds that existed throughout the sample period, we model the likelihood of participating in an IPO. We model the likelihood based on financial ratios found to be significant in previous models; the market capitalization of the firm one week after the first trading day (in millions of NIS); the published investment policy of the fund (equity, bonds, or derivatives); the IPO's pre auction commitment success (over commitment takes the value 1 if the IPO had more demand than the appropriated 80% at the first stage, zero otherwise); and the size of the IPO in millions of NIS. We also include dummy variables to the identity of the fund's main owner (BG or non BG) and to the group main owner (BG or non BG). The variable "same" refers to the instances where the fund manager and the issuing firm belong to the same group. The model controls for industry and year fixed effect. Coefficients of the logistic regression are reported, standard errors in parenthesis.

EQUATION	VARIABLES	(1) participating	(2) participating	(3) participating	(4) participating
Participating	Same group				0.595*** (0.220)
	bg firm			0.423*** (0.129)	0.290* (0.151)
	bg investor		-0.0962 (0.218)	-0.0864 (0.220)	-0.127 (0.220)
	Liabilities to capital	-0.00359* (0.00192)	-0.00361* (0.00192)	-0.00405** (0.00187)	-0.00324* (0.00190)
	Market cap	0.000637*** (0.000230)	0.000635*** (0.000230)	0.000551*** (0.000213)	0.000512** (0.000218)
	Equity fund	1.642*** (0.364)	1.635*** (0.364)	1.635*** (0.364)	1.638*** (0.361)
	Bond fund	1.660*** (0.363)	1.655*** (0.363)	1.672*** (0.363)	1.666*** (0.360)
	IPO size	0.000169 (0.000453)	0.000174 (0.000453)	-2.74e - 06 (0.000430)	9.72e - 05 (0.000447)
	Constant	-4.419*** (0.705)	-4.324*** (0.730)	-4.369*** (0.730)	-4.301*** (0.731)
	Industry controls	yes	yes	yes	yes
	Year controls	yes	yes	yes	yes
	Observations	5,069	5,069	5,069	5,069

Robust standard errors in parentheses

*** $p < 0.01$, ** $p < 0.05$, * $p < 0.1$

Figure 1: Weight adjusted excess returns on IPOs

Returns on IPOs according to the three classes of stocks are reported. Returns are raw market adjusted returns, weighted by the market capitalization of the company five days after the IPO. Time is calendar days after the IPO. “Same BG” is the return series for companies where mutual funds from the group invested in the IPO during the road show. “Diff” are IPOs originating from business groups with no financial intermediaries and “Non” are IPOs of firms that do not belong to a business group.

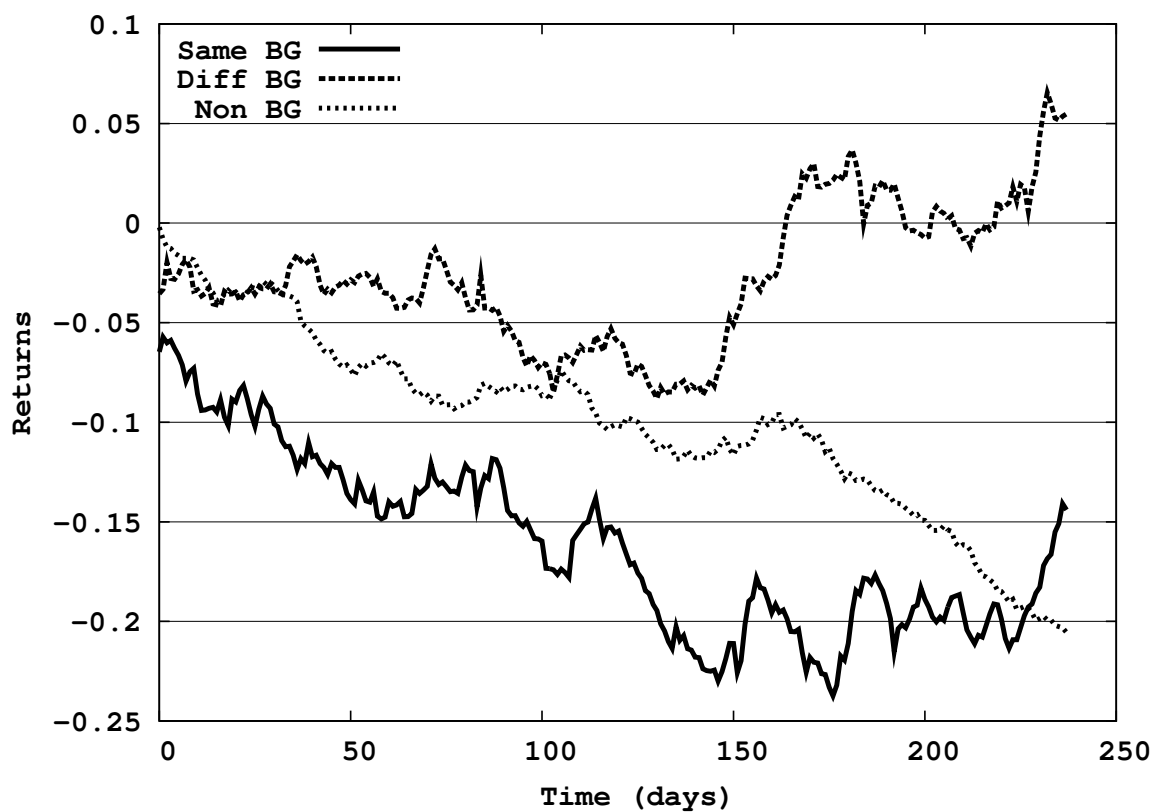


Figure 2: Percentage Holding of Stocks Bought in an IPO over Time

Holdings of mutual funds are taken from monthly portfolio reports to the Israeli Security Authority. Quantity of shares is tracked over 19 periods until all stocks that were bought in the IPO are sold across most IPO-fund combinations (where 1 is 100% of the shares bought during the auction and 0 means the fund owns no more shares of the firm). Firms are either classified as “same group” for the firms that belong to group with financial intermediaries, “different group” for firms that belong to groups with no financial intermediaries, and “nongroup” for firms that don’t belong to a business group. Mutual funds are classified in the same way. Days are calendar days. All holdings are weighted for the firm’s market capitalization at the end of the first trading day. MF= Mutual fund, IPO= The firm going public.

