

# **Blank Checks, Blind Faith: Agency Conflicts and the Performance of Cash Shells\***

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## **Abstract**

Cash shells are a unique type of company with no assets or track record when going public, whose sole purpose of existence is to make acquisitions. Using a sample of 82 cash shells listed on the Alternative Investment Market (AIM) of the London Stock Exchange, we focus on their agency problems and post-IPO performance. We find that insiders in these firms earn much higher returns than outside shareholders, and many times at their expense. They are usually granted shares at a discount before the IPO, pushing their average annual returns to almost 35% in the three years following the IPO, while the other shareholders lose 12% per year on their investment. This difference is shown to be mitigated by setting up an adequate system of incentives, as predicted by agency theory. Cash shells are on average high risk, under-performing ventures, where agency problems play an important role, and should therefore be looked upon carefully by potential investors.

Keywords: cash shells, corporate governance, reverse mergers

JEL classification: G32, G34

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## 1. Introduction

Cash shells are firms set up by a small number of professional investors or entrepreneurs, and are characterized by having no operational activity or track record at the time of the Initial Public Offering (IPO). They raise money from outside investors in order to acquire stakes in firms the managers deem appropriate. At the moment of the IPO there is no assurance on where the money will be invested and few guarantees regarding the suitability of any potential target. The directors are given a “blank check” to invest on the shareholders’ behalf, creating a situation potentially rich in conflicts of interest. A critical aspect for these firms’ success is thus the extent to which these conflicts are addressed by setting up an adequate system of incentives and control.

This study examines the functioning and returns of clean cash shells in the United Kingdom<sup>1</sup>, using a sample of 82 of these firms listed on the Alternative Investment Market (AIM) of the London Stock Exchange between January 1997 and June 2005. Clean cash shells are newly created shells that go public with no operating assets and use the IPO proceeds to acquire stakes in other firms. They are fundamentally different from “dirty shells”– cash shells that arose from the liquidation of the activities of an operating company. Clean cash shells have been described in the media as “private equity with a quote” (*Financial Times*, 4 November, 2007) and as a useful tool for entrepreneurs (*Financial Times*, 9 November, 2004), creating a hype around them and fuelling their exponential growth in 2004 and 2005 as private investors wanted to diversify their holdings into new asset classes.

We argue that these cash shells present a unique setting to test the predictions of agency theory. They are fully controlled by their creators before the IPO. At the time of the IPO investors are giving their money to a team of managers in blind faith since the only assets of the

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<sup>1</sup> Although these firms also exist in the United States, their shares are not freely tradable in this market as a result of being considered “penny stock”.

firm are the directors' expertise, the cash raised in the IPO and the public listing. This gives rise to a severe agency problem between managers and shareholders (Jensen and Meckling, 1976), and we focus on its effect on performance.

This study is one of the first to examine clean cash shells. The only other study we are aware of is Morgan (1988), where cash shells are studied from an entrepreneur's perspective and agency problems are not taken into account. Although at first glance cash shells may appear similar to Special Purpose Acquisition Companies (SPACs), studied by Jog and Sun (2007), Lewellen (2008) and Jenkinson and Sousa (2009), it is important to note that they present important differences in terms of corporate governance and shareholders' protection. In contrast to what occurs with SPACs, in cash shells an investor can not have his money back by voting against a deal, and the IPO proceeds are fully accessible for managers to use in any investments they consider appropriate. Shareholder approval is required for reverse mergers, but by simple majority and not by an 80% majority as in SPACs. Finally, cash shells are much smaller ventures, raising on average two million pounds at the IPO, while SPACs raise around \$65 million (Jog and Sun, 2007).

Jenkinson and Sousa (2009) suggest, but do not test, that the performance of SPACs might be negatively influenced by the distorted system of incentives in place; in our study we offer evidence that this relationship occurs in cash shell firms. More specifically, cash shells with a poor corporate governance system, as measured by the incentives misalignment between shareholders and insiders, have significantly lower returns than cash shells with strong corporate governance mechanisms. This misalignment of interests between the creators of the shells and the other shareholders arises mostly from the grant of shares at a discount to the cash shells' initiators before the IPO. On average, the IPO investors pay £1 for only 74 pence of cash in the

shell as a result of this discount. Our results are inconsistent with the possibility of the discount existing solely as an efficient compensation mechanism, and we show that if the fraction of the company granted to managers increases by one standard deviation, the long term returns to shareholders decrease by almost 12% per year as a result. An interesting finding is therefore that investors in cash shells do not adequately price-protect themselves at the time of the IPO against potential managers' abuse.

The paper proceeds as follows. In the next section we develop our hypotheses based on the current literature. In part three we discuss data and methodology. We present the results in section four and conclude in section five.

## **2. Hypotheses development**

We develop our hypotheses based on agency theory predictions and on the current literature on reverse mergers. We separately analyze the incentive structure, the control mechanisms and the reverse merger process to get a clear picture of the potential importance of each one of them in the cash shells' activity.

### *2.1 Incentive structure*

According to agency theory, any aspect that causes a divergence of interests between management and shareholders has a negative impact on performance through the increase in agency costs (Jensen and Meckling, 1976). In the case of cash shells, an important source of divergence of interests may be the discount enjoyed by insiders on their pre-IPO shares. When a cash shell is created, its initiators are free to decide on how many shares they will get and at what price. Often they benefit from a significant discount on their shares compared to the IPO price. It is possible that this has a negative impact on performance as insiders will have fewer incentives to pursue a value-creating acquisition – even when the stock is trading below the IPO price they

may enjoy a positive return on their investment. This problem is worsened by the need to create liquidity in the company's shares; until an acquisition is made, it is difficult for insiders to cash out in case they hold a sizeable share of the equity. Insiders who bought their shares at a high discount and own a significant equity position could then have an incentive to acquire any target firm they can find, as for them it is more important to create liquidity than to achieve a share price higher than the IPO price.

Conversely, the discount enjoyed by managers can be seen as an efficient way of compensating the managers for their services because the tax on capital gains is lower than income tax, in line with the argument presented by Rydqvist (1997) on underpricing. Since the value of their salaries and stock options is usually low, granting themselves a discount in the shares of the company can be a way of being paid for their services of searching for a target and for the risk taken. In that case the performance of the firm should not be negatively affected by the use of this mechanism. Whether the discount is a cause of agency problems or an efficient compensation mechanism is an empirical question that we examine by looking at the relationship between the discount and the performance of the firm.

In addition to the possibility of moral hazard created by the existence of the discount, there is a significant information asymmetry between prospective shareholders and management at the time of the IPO (Ritter and Welch, 2002). The standard measures of value that are used by investors to analyze the IPO price (Kim and Ritter, 1999) do not apply in the context of cash shells, as they require accounting ratios not meaningful in these firms. Investors base their investment decision on the perceived ability and commitment of the managers, which they are not able to fully anticipate and for which they have less information than the managers themselves. The higher this information asymmetry, the least efficient the IPO pricing is. As a

result, managers who want to sell the company at the best possible price may acquire a larger fraction of the equity issue at the IPO price, sending a message of confidence in the future (Leland and Pyle, 1977) and reinforcing their commitment to the firm. We hypothesize that the amount of shares bought by managers at the time of the IPO has a positive influence on the company's performance, as it conveys positive information to investors on the outlook of the firm. Furthermore, this effect can be strengthened by the reduction in agency costs resulting from the higher ownership stake of insiders bought at the IPO price.

## *2.2. Control mechanisms*

In addition to providing the managers with incentives to act in the best interests of the shareholders, it is also important for the shareholders to have the mechanisms to control them. Fama and Jensen (1983) see the board of directors as the mechanism which provides internal control on behalf of the shareholders. This is mostly done by the outside board members, as a result of their independence from the firm's management. In the model developed by the authors, the incentive for outside directors is to develop their reputation as "experts in decision control" (Fama and Jensen, 1983).

The model predicts that the degree of the independence of the board of directors should have an important and positive impact on the firms' performance. This could be especially important in cash shell companies, as there is no operating activity and the directors are the only employees of the company. On the other hand, managers have a very important role in selecting outside directors (Rosensestein and Wyatt, 1990), and may use their influence to select outside directors that are less likely or less able to closely monitor their actions (Shivdasani and Yermack, 1999). The outside directors in cash shells are nominated by the insiders of the firm before its public listing, raising serious doubts on their complete independence from them.

Whether or not independent boards lead to better performance of cash shells can only be answered by an empirical analysis.

The board of directors and the incentives system are just two of the corporate governance mechanisms of a firm. Other commonly referred mechanisms expected to reduce agency costs, such as monitoring by debtholders (Shleifer and Vishny, 1997), pressure from the product market (Schmidt, 1997) or from the market for corporate control (Offenberg, 2009), do not apply in cash shells. However, an important corporate governance instrument is the right that shareholders have to voluntarily liquidate the firm. This happens when no acquisitions are accomplished within a certain timeframe and only if specified in the IPO prospectus. Its importance lies on the fact that it assures the shareholders that managers are not going to enjoy excessive perks and salaries for a long time without finding suitable deals. It also works as an incentive for management to work harder, as otherwise they may face a vote to wind-up the activities of the company and thus lose their job. We infer that having the option to liquidate the firm is valuable for shareholders, as reported by Kim and Schatzberg (1987) and Mehran et al. (1998) who show a positive value effect of voluntary liquidation. Based on these arguments, we hypothesize that giving shareholders the right to decide on the cash shell's liquidation has a positive impact on the firm's returns.

### *2.3. The decision to reverse merge*

We also test for the findings that have been reported in the literature on reverse mergers. This process is “a specific corporate governance event where a private company is acquired by a public company [cash shell] in order to obtain the public listing, and where the private partner is the surviving public entity” (Gleason et al., 2005, p. 56). The shareholders of the private held company usually become the cash shell's controlling owners, as more than 50% of the total

equity has to be issued in order to finance the deal. The original directors of the cash shell typically quit after this process or become non-executive directors. The cash shell changes its name and absorbs the private firm's activity, becoming an operational listed company. Although most of the cash shells perform a reverse merger, some opt instead for an alternative strategy of carrying out smaller transactions which do not classify as such.

It is key to understand some of the issues related to reverse mergers as they entail a profound change in the cash shells' operations. The reverse merger offers a way for the private firm to go public without making an Initial Public Offering (IPO). The consensus in the academic literature is that only poorly performing firms go public using this mechanism, with lower survival rates and poor long term performance reported by Gleason et al. (2005) and Sjostrom (2008). Sjostrom (2008) contends that going public using a reverse merger sends a negative signal to the market that the company was probably passed over by underwriters and is therefore of low quality. Arellano-Ostoa and Brusco (2002) also raise this signaling issue and develop a theoretical model to explain why only lower quality firms prefer a reverse merger over an IPO.

However, it must be noticed that, when a reverse merger takes place, the enlarged company has to apply for re-admission to the stock market and to meet most of the requirements imposed on normal IPOs. The main advantage of this process is therefore not the simplification of the process or the shortening of time or cost, but the guarantee of admission and the existence of a shareholder basis (Arellano-Ostoa and Brusco, 2002; Sjostrom, 2008). It also assures the private company that the process of going public is not going to be delayed or cancelled as a result of poor market conditions. We study the cross-sectional impact of the reverse merger decision on performance by comparing the cash shells which perform a reverse merger with



those which do not. Consistent with the abovementioned literature, we expect the former to display worse performance in the long-term.

### **3. Data, methodology and sample**

#### *3.1. Data*

The sample consists of 82 clean shell companies going public on AIM between January 1997 and June 2005, to ensure we have at least three years of data for every firm. We focus on clean shells as only these go public with the explicit purpose of investing in an operating company. There is no specific industry code for cash shell companies, as they may be classified under investment companies or under the code of the industry they intend to pursue acquisitions in. Several sources of information were combined to guarantee that we could identify all the relevant firms (media articles, Zephyr, Thomson One Banker, Thomson Research, Factiva and AIM statistics). In order to be included in the sample, a company must meet the following requirements:

- Have no operating activity or interests in any company at the time of going public
- Raise cash in the IPO by issuing shares to new investors
- Have a well-defined strategy of acquiring significant stakes in other firms or, in the majority of the cases, proceed to a reverse merger into another company, with no specified time horizon (no exit strategy)
- Have no employees at the time of the IPO other than the directors

In addition, we exclude firms for which we could not access the accounting or financial information. We removed from the initial sample of 85 firms three extreme outliers more than 3 standard deviations away from the mean, in order to avoid contamination of the results. We hand-collect data on cash shell characteristics from the IPO prospectus of each company,

obtained from Thomson Research. Deal and IPO information was obtained from Zephyr database, provided by Bureau Van Dijk, and cross-checked using Factiva. Stock prices were retrieved from Datastream. Table 1 shows the definitions of the variables used in our subsequent analyses.

[Please insert Table 1 about here]

### *3.2. Methodology*

We measure the return on the stock of each cash shell one, two and three years after the IPO, using annualized buy-and-hold abnormal returns (BHAR). The abnormal returns are computed by subtracting from the annualized raw returns the return provided during the same time period by the AIM all-share index. We implicitly assume a market beta of one for all the firms, as a result of the lack of pricing history and following the standard methodology in the IPO literature (as, for example, in Loughran and Ritter, 1995). In seven IPOs the outside shareholders were also granted warrants on the firm's stock. In these cases, we compute their value one, two and three years after the IPO using the Black and Scholes (1973) model<sup>2</sup>. We calculate the returns by adding up the value of the warrants (if existent) to the value of the stock at each point in time and comparing it with the value of the warrants and stock at the end of the first day of trading, in order to exclude the underpricing effect. The returns obtained for each year are then used as the dependent variable and regressed on the firm characteristics at the time of the IPO and on control

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<sup>2</sup> The risk free rate is the government yield quoted at the time of the valuation, using the maturity that matches the best with the time to expiration of the warrant. Historical volatility is based on the market index (FTSE AIM all-share index), computed for the length of time to expiration of the warrant being valued, due to lack of firm-specific data. Following Schulz and Trautmann (1994), we do not correct for dilution when valuing warrants.

variables. Whenever a company is delisted in the three years following the IPO we use the annualized return up to the moment of delisting, instead of excluding it from the sample.

### *3.3. Descriptive statistics*

The 82 cash shells going public during the period of time under analysis raised around £170 million in total. Table 2 shows that 2004 and 2005 (until June) were the most active years. In April 2005 new rules regarding the listing of cash shells on AIM came into force, which required cash shells to raise at least £3 million at the moment of admission, and forced listed shells with less than this amount in cash to make a transaction before April 1<sup>st</sup> 2006. The new ruling had a substantial impact, causing the number of cash shells listed to decrease from 120 to 95<sup>3</sup>. It also caused a rush of new firms to the market before it went into effect, as these firms would not comply with the new ruling. As an example, in the month of March of 2005 19 cash shells were admitted to trading, and none of them raised the minimum of £3 million required for IPOs occurring after the 1<sup>st</sup> of April 2005.

[Please insert Table 2 about here]

More than 90% of the cash shells' IPOs were fully subscribed, and 80% of them involved cash shells searching for targets in a specific sector. More than half of the companies also specified a geographic zone of search, and the same proportion gave the possibility for the shareholders to decide on the liquidation of the company's assets in case an acquisition was not made within a specified timeframe (between one and two years). We believe most of the outside shareholders to be private investors, as in only a few cases there were institutional investors

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<sup>3</sup> "Turning point for shells", Growth Company Investor, 10 Jun 2006. This number includes both clean and dirty cash shells.

disclosed in the IPO prospectuses or in the Price Waterhouse Coopers' Corporate Register database.

Almost all the cash shells address corporate governance issues in their IPO prospectuses, and claim to abide by a corporate governance code (usually the combined code). However, the code is many times not fully implemented in practice, and often the directors use the company's size as a reason not to meet some of the recommendations. In fact, only one fifth of the firms had created a remuneration and audit committee at the time of the IPO and, including the stakes owned by other insiders<sup>4</sup>, about half of the cash shells are controlled by insiders after the IPO.

The board of directors can be considered independent from management in only 54% of the companies. In line with the UK's Combined Code on Corporate Governance, we consider a board independent if half or more of its members are independent. Following Rosenstein and Wyatt (1990) and Kim et al. (2007), we define an independent director as one having no business connection to the firm, management team or any of the founding shareholders. However, it is important to note that there is a thin line between independent and non-independent board members in cash shells, as all of them are selected by their creators and work as "deal scouts". The board normally consists of three directors, each one with a salary between ten and fifteen thousand pounds per year (excluding stock options and warrants) for their part-time commitment to the firm. The typical director is a very experienced and well connected individual, who holds at least another executive position and more than seven non-executive positions in different companies. Most firms have directors with experience in investment, obtained either in investment banks, private equity houses or by running their own companies, and often with experience in the sector the cash shell intends to pursue acquisitions in. There is usually only one

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<sup>4</sup> Individuals or firms that created the cash shell and got shares at a discount before the IPO but do not have any representatives in the board of directors.

executive member of the board. The directors, together with the other founding shareholders that may exist, hold on average 47.17% of the company at the time of the IPO, having bought 12.39% at the IPO and the remaining before it, at a price that is on average 42% of the IPO price. Almost all the cash shells employ a lock-up of 12 months during which the cash shell creators are not able to sell their shares, in line with the AIM rules.

On average it takes 355 days for a cash shell's first transaction to be announced; however, this is a number highly influenced by the few cash shells that took years to announce an acquisition – half of them take less than 251 days. Most of the cash shells in the sample made two transactions until June 2008. Twenty-one companies did not perform a reverse merger during the period of analysis, and just 63% of those which had specified a sector for acquisition did, in fact, their reverse merger in that sector. The average reverse merger is valued at £16.4 million and almost always involves a part of the payment in stock of the cash shell. Only in 40% of the reverse mergers analyzed there was cash passing hands, usually originated from the cash shell's reserves and/or from the issuance of new shares. Roughly one third of the transactions involved also an earn-out component, making a part of the payment dependent on the target firm's performance in the years following the merger. This earn-out consists, on average, of a very high share of the total deal value (42%).

A summary of the main characteristics of the sample can be found in Table 3.

[Please insert Table 3 about here]

The average level of underpricing of cash shell companies is 32.98%, substantially higher than the degree of underpricing usually reported in empirical studies. For example, Brennan and

Franks (1997) report an average underpricing of 9.4 percent for UK IPOs. It is likely that it is higher in cash shells in order to compensate investors for the risks involved, especially the liquidity risk (Ellul and Pagano, 2006). Another important aspect is the need to broaden the ownership basis and increase the liquidity of the shares post-IPO (Zheng and Li, 2008). The shares in cash shells are extremely illiquid, as a result of the small size and lack of news on the companies' activity. It is therefore important for the managers and other insiders to ensure that some liquidity is created on the company's stock, as otherwise it will be difficult to cash out on their positions.

Table 4 shows the stock returns of cash shells. The returns are measured for both the outside shareholders and founders of the cash shell. We measure the shareholder returns as explained in section 3.2., but for the directors and other insiders we do not correct for underpricing. The reason for this discrepancy is that for outside shareholders it is very hard to buy the shares at the offering price, while the insiders buy most of their shares before the IPO and are guaranteed a stake in the offering<sup>5</sup>.

It is important to notice the extreme variations found within the sample. Some ventures provide very high returns compared to the average, causing the large difference between this value and the median. This is also reflected in the high standard deviation of the returns for both insiders and outside shareholders, which is a sign of the high risk associated with investing in cash shells. It is thus better to look at the median values when trying to understand the typical cash shell.

The discount on the pre-IPO shares and the grant of options and warrants to insiders make their returns much higher than the "normal" returns. They range from a median of 152% in

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<sup>5</sup> In the unlikely case in which an individual investor would buy the shares always at the offering price, the median of his annualized return would be 3.07%, -14.06% and -16.43% for year one, two and three after the IPO, respectively.

the first year to almost 16% at the end of the third (annualized). This corresponds to a median (average) profit of £164,194 (£824,083) per cash shell for all the insiders, assuming they hold their shares until three years after the IPO. The picture for outside shareholders is completely different. The median cash shell has a negative return in every of the three years following the IPO, and the average return drops at a substantial rate over time. If we use instead non-annualized cumulative BHAR, the median (average) returns are -18.32% (14.73%), -41.41% (-5.48%) and -55.28% (-16.97%) for year one, two and three after the IPO, respectively. Overall, cash shells seem to consistently underperform the market.

[Please insert Table 4 about here]

## **4. Empirical results**

### *4.1. Main results*

Our goal is to test whether the incentive and control systems of cash shells play any role in explaining their returns. For this purpose we regress the annualized BHAR in the years following the IPO on the firm characteristics at the time of the IPO. By using this method we avoid the endogeneity problem that could arise regarding the relationship between performance and governance. The corporate governance structure is set before the IPO and thus post-IPO performance can not have any impact on it. Table 5 reveals the regression results.

[Please insert Table 5 about here]

The discount enjoyed by insiders has a negative impact on the firm's performance over the whole period in analysis, getting more significant with the passage of time. The higher the discount, the more performance suffers. It is important to notice that, although not reported, the inverse relationship holds for insiders. By having been granted shares at a lower price, the managers' interests diverge from the shareholders' interests, as their incentives to increase share price are reduced. This gives rise to agency costs that are reflected in performance. The creators of a cash shell benefit from a higher discount on their shares, although it negatively affects the returns for the other shareholders.

The amount of shares bought by insiders at the time of the IPO has a positive impact on performance, especially in the first year after the IPO, when the lockup period has not expired yet. We confirm our hypothesis that managers put more effort in maximizing the value of the company by "putting their money where their mouth is", purchasing stock at the IPO price as the other shareholders. Their sensitivity to the stock performance becomes greater, and the better alignment of interests with shareholders results in the reduction of agency costs and consequent increase in performance.

The effect of the control system on performance is not as clear as the effect of the monetary incentives of managers. Both the possibility to liquidate the firm given to shareholders and the existence of an independent board have a positive impact on the performance, but never at a significant level. We believe that these results are caused by the inherent difficulty in monitoring the activities of managers in these firms. It is very hard for independent directors or for shareholders to observe if the management team is actively searching for an appropriate target. Furthermore, the most important control instrument is the need to get shareholders' approval for major acquisitions/reverse mergers, which is required by law for all the cash shells.



Also, it must be taken into account that, as we have previously mentioned, the independent members of the board are selected by the creators of the cash shell, and therefore are not completely free from their influence.

The impact of the different corporate governance settings on firm performance does not have only an impact in statistical terms; its economic impact is also of great magnitude. A one standard deviation increase in the number of shares bought by insiders at the IPO results on a 61% increase in the first year's stock return. On the other hand, a standard deviation increase in the fraction of the company granted to managers through the use of the discount results in a decrease in the annualized performance of 12% in the second and third year following the IPO. A puzzling finding is that shareholders do not seem to price-protect themselves against potential abuse from the managers by demanding a higher underpricing. In unreported regressions we find no relation between the level of underpricing, measured as the percentage difference between the offer price and the first trading day closing price, and the discount factor or the lack of control instruments. The relation between the degree of underpricing and the long term performance is also not significant, in contrast to what has been reported in most studies (see, for example, Bradley et al., 2009).

Cash shell creators have the possibility to set up the corporate governance system of their company. We observe that some of them use it to show investors their confidence in the business, resulting in higher returns on average. However, others seem to take advantage of this possibility and try to extract additional compensation from shareholders, resulting in the long-term underperformance of their ventures. We later analyse in more detail some of the differences between these two types of entrepreneurs.

#### 4.2. Reverse mergers

Next, we examine the impact of the decision to reverse merge on firm performance. We start by looking directly at the returns of the sub-sample of firms which made a reverse merger in the three years following the IPO. These companies perform much worse than the rest of the cash shells; their returns decrease over time, reaching an annualized average (median) of -19% (-63%) three years after the IPO, compared to an average (median) of -13.81% (-12.49%) for the rest of the sample<sup>6</sup>. 70% of the shells which used this mechanism were quoted at a price below the IPO price at this time.

We include dummies in the original regressions which take the value one in case a reverse merger was concluded by the firm until the year  $t$ . Table 5 shows that a negative relationship is present in most of the observations, giving some support to our predictions. Nevertheless, the coefficient is only significant in year two. We look further into this issue in our robustness checks, but we interpret our results as giving some support to the reports on the low quality of the private firms that make a reverse merger made by Arellano-Ostoa and Brusco (2002) and Gleason et al. (2005).

We also look into the market reaction to the announcement of a reverse merger, which we use as a proxy for the market assessment of the deal terms, and compare it with the long term performance. Because the shares of the cash shell are usually suspended when the announcement occurs, we take into account the share price in the five days following the re-admission to trading of the cash shell. We find a positive return on average of 3.40%, with a median of 4.37%, in line with Gleason et al. (2005), although our results are not statistically significant. In unreported regressions we find no relationship between the returns after the announcement of a reverse

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<sup>6</sup> Difference significant at the 5% level for the medians (p-value of Wilcoxon/Mann-Whitney test of equality of medians of 0.0179).

merger and the long-term performance of the cash shell, implying that the market can not accurately predict the quality of the deals.

In order to isolate the effects of corporate governance on performance we use control variables which reflect the strategic and operational decisions of each firm. The most interesting result yields from the positive relationship between the directors' experience and performance, a finding that is line with our intuition of more experienced and better connected directors being able to pick better deals.

#### *4.3. Robustness checks*

In Table 6 we present some robustness checks. We run the regressions taking into account the total equity holdings of insiders (model 1) and including year dummies (model 2). In the first case we exclude the variable representing shares bought at the IPO by insiders (IPOSHR) in order to avoid double counting. We only show the results related to the returns three years after the IPO, but all our main conclusions are robust to any of these changes.

Fama (1998) points out that using long-term BHAR may present severe statistical problems and lead to biased results. We therefore re-run the regressions using monthly abnormal returns in a panel data model. As shown in model 3 of Table 6, we confirm that a higher discount factor has a significantly negative effect on returns, even when controlling for other factors. The dummy  $RM_i$  becomes highly significant, while the coefficient of IPOSHR is no longer significant; an expected finding since this variable only has an impact on returns in the first year.

[Please insert Table 6 about here]

We also check for the robustness of our results when stock returns are measured using different methodologies. For the sake of brevity we do not tabulate the results<sup>7</sup>. We re-run the same model not correcting for underpricing and also using non-annualized buy-and-hold abnormal returns (BHAR). Our results are qualitatively similar and the coefficients for the discount factor variable become even more significant. They are also robust to using instead the FTSE 100 index to compute abnormal returns. Finally, we test for potential multicollinearity by looking at the variance inflation factors of all the explanatory variables, but for none of them this is a problem.

We observe that the reverse merger coefficient is negative in almost all the models, but not always at a significant level. Nevertheless, when we adjust the information on a monthly basis it turns out extremely significant. Although we can not offer definitive evidence, our robustness checks give substantial support to our hypothesis that most of these reverse mergers are value destroying deals.

#### *4.4. Directors' trading*

The results from our regression analysis suggest that having adequate corporate governance mechanisms in place has a positive impact on the performance of cash shells, in line with our prediction of high agency costs in these firms. In order to confirm this we take a closer look at the actions of the directors after the IPO. We start by comparing the performance and characteristics of the cash shells from which the initial directors cashed out with the ones where the directors kept their equity stake. We would expect the firms in which the directors remained as shareholders to exhibit a better performance, reflecting their commitment to the firm. Using the Price Waterhouse Coopers' Corporate Register, we are able to track the changes in directors' ownership over time and analyze whether there is any relation between they cashing out and firm

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<sup>7</sup> All the results discussed in this section are available from the authors upon request.

characteristics. Due to data restrictions, we focus on the comparison between the firms where directors still held equity three years after the IPO and firms where they had cashed out<sup>8</sup>.

[Please insert Table 7 about here]

As Table 7 reveals, firms in which the directors keep their positions for a longer time outperform the ones in which the directors cash out. The results suggest that the directors granting themselves shares at a higher discount are the first ones to cash out, and they manage the worse performing cash shells. There is also a significant difference in the fraction of firms performing a reverse merger; cash shells where the directors want to cash out seem more prone to do one, so that liquidity is created on the shares and it is easier for them to sell their positions. We confirm this by looking at the trading volume once a reverse merger is announced. Using a window of 100 trading days before and after the announcement of the reverse merger we find a median increase of 202% in the average daily volume and of 331% in the total trading volume for the 61 reverse mergers in our sample. Directors have therefore an incentive to perform a reverse merger if they want to cash out, and these directors are usually the ones which got their shares at a discount. Overall these results support our previous interpretation that the system of incentives has an impact on the behaviour of the directors and consequently on the performance of cash shells.

#### *4.5. Serial entrepreneurs*

We also analyze the directors which were involved in the creation of three or more cash shells. In opposition to what we expected, the cash shells created by these “experienced” directors

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<sup>8</sup> Eight firms in which the directors/insiders held no shares at the time of the IPO are excluded, as well as three firms with not enough data available and 14 firms which ceased to exist in the three years after the IPO, since in those cases we are not able to know whether the directors sold their shares. In total we exclude 25 observations.

performed significantly worse than the average in the three years following the IPO, with an annualized abnormal median return of -27.4%, compared to the -12.8% for the rest of the sample. This difference is significant at the 5% level. Out of the 11 entrepreneurs analyzed, all had a negative average on the returns provided to the shareholders of the cash shells in which they were involved. On the other hand, the insiders' returns are in line with the reported for the other cash shells, with an annualized average (median) abnormal return of 32.7% (14.8%). The insiders in the cash shells created by these eleven entrepreneurs would make on average an abnormal profit of £416,263 in each of them if they held their positions in the three years following the IPO. However, they tend to cash out earlier from the ventures they create, as shown in Table 7, raising doubts on their commitment to the firm they establish. All in all, these figures suggest that serial creators of cash shells seem to gain experience on how to personally profit from the use of this instrument but not on how to create long-term value for the shareholders.

A logic question to ask is therefore why investors kept buying shares in cash shells created by experienced entrepreneurs, considering their lower returns. The reason is that almost all of them were created in a very short time period, in 2004 and 2005, and when launched into the market the entrepreneurs had only a track record of positive short term performance, as the full consequences of the poor corporate governance of their shells were not visible yet. These managers seem to have taken advantage of a window of opportunity when cash shells were favourably received by investors to create as many as they could.

## **5. Summary and conclusion**

This paper investigates the returns of cash shell companies and their relation with agency theory, using a sample of 82 shell companies going public in the UK between 1997 and June 2005. Their

peculiar organizational form exacerbates the conflict agent-principal, and our results show that key agency theory predictions apply in this setting.

The unique characteristics of cash shells offer several opportunities for self-dealing to the managers, the most important one being the granting of shares at a price substantially lower than the IPO price. This has a negative impact on the firm's performance, and can be seen as a way to transfer wealth from shareholders to insiders. It is also the main reason for the large difference in returns between cash shell creators and outside shareholders, whose investments suffer from underperformance in most of these ventures. The returns for insiders seem thus to be relatively high taking into account their company's poor performance.

Our results show that agency costs in cash shells are substantial in economic terms. Outside shareholders' returns are enhanced by employing an effective system of incentives, consisting of a large fraction of equity bought by managers at the IPO and a low price discount on their pre-IPO shares. The control system in these firms seems to be less effective; we argue that this is due to the difficulty of monitoring the managers' actions in a non-operating firm.

We identify two types of cash shell creators. Some of them create it in terms which resemble a quoted investment fund, investing in it in the same conditions as the other shareholders and for a long period, providing the shareholders with better returns than average. However, most of the creators of cash shells have a different approach; by granting themselves shares at a discount before the IPO takes place and cashing out earlier, they seem to be less committed to the success of their ventures and this is reflected in a poor long term performance. We also observe that most of the individuals which were involved in the creation of several cash shells belong to the latter category.

Cash shell shareholders consistently approve value destructive deals, a puzzling finding also reported for SPACs by Lewellen (2008) and Jenkinson and Sousa (2009). Despite the differences in the governance mechanisms of the two types of firms, we believe that some of our findings concerning cash shells can be extended to the universe of SPACs.

We conclude that the strict rules introduced by AIM in 2005 regarding cash shells, making it harder to create one and increasing investors' protection, are a step in the right direction, and are likely to mitigate the dark side of some of these companies. Furthermore, by requiring a higher starting capital, these rules make it more likely for institutional investors to be involved, who will put more pressure on the adoption of a better corporate governance structure (*The Independent*, 19 March, 2005).

All in all, cash shells are a legitimate investment vehicle that may provide important advantages to investors as a result of their unique characteristics. However, these characteristics also give rise to many agency problems that play a greater role than in most operating companies. Some cash shell creators seem to use them to profit at the other shareholders' expense, especially through the creation of several of these ventures. Prospective investors should thus be aware of the inherent conflict of interests, safeguarding their money by investing only in cash shells that offer a good system of incentives and control.



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**Table 1: Variable definitions**

Variable	Label	Description	Source
Discount Factor	DISCOUNT	Percentage of the total equity of the firm granted to insiders in the form of discount on their pre-IPO shares. It is equal to $[1 - (\text{Price shares pre-IPO} / \text{IPO price}) * \text{Percentage of post-IPO equity bought by managers at a discount}]$	IPO prospectuses
Shares bought at IPO	IPOSHR	Percentage of the total equity of the firm bought by creators of the cash shell at the time of the IPO, at the IPO price	IPO prospectuses
Independent board	IBOARD	Dummy variable which takes the value 1 in case half or more of the directors are independent, 0 otherwise	IPO prospectuses
Liquidation	LIQ	Dummy variable which takes the value 1 in case the shareholders can decide on the company's future if no acquisition is made within a certain time limit, 0 otherwise	IPO prospectuses
Reverse Merger	RMt	Dummy variable which takes the value 1 in case the cash shell performed a reverse merger until the end of year $t$ after the IPO, 0 otherwise	Zephyr
Acquisitions	ACQt	Number of acquisitions made by the cash shell until the end of year $t$ after the IPO	Zephyr
Directors experience	EXPR	Average number of board positions outside the cash shell occupied by the directors at the time of the IPO	IPO prospectuses
Serial entrepreneurs	SERIAL	Dummy variable which takes the value 1 in case any of the directors was involved in the creation of three or more cash shells, 0 otherwise	IPO prospectuses
IPO proceeds	PRCDS	Value of the proceeds received with the sale of shares at the IPO (in £ millions). It is equal to the number of shares sold at the IPO times the price per share set in the IPO prospectus	Zephyr
Industry dummies	INDUSTRY	Dummy variables for the industry in which a cash shell focuses its investment strategy. Takes value 0 in case no specific sector is disclosed in the prospectus. Industry sectors included are business services, financial services, leisure and sports, natural resources, utilities, telecommunications and media, and a residual category (others).	IPO prospectuses

*Table 1: Description of variables.*

**Table 2: Number of cash shells going public and amount raised per year**

<b>Year</b>	<b>Number cash shells</b>	<b>Money raised (in £ millions)</b>
1997	2	12
1998	1	5
1999	4	5
2000	6	11
2001	6	7
2002	1	0.5
2003	4	20
2004	27	46
2005	31	63
<b>Total</b>	<b>82</b>	<b>169.5</b>

*Table 2: number of cash shells going public and amount raised per year, until June 2005*

**Table 3: Descriptive statistics of the sample**

		Mean	First quartile	Median	Third quartile	Standard Deviation
<b>Deal characteristics</b>	Time to make first acquisition (days)	355	142	251	456	320
	Number of Acquisitions	2.27	1	2	4	1.66
	Deal Value (£)	16,432,427	4,426,244	10,948,738	21,762,784	17,228,763
	Amount raised on IPO (£)	2,011,378	511,250	992,500	1,961,250	3,094,765
<b>Governance characteristics</b>	Board Size	3.15	3	3	4	0.92
	Board Independence	50%	33.33%	50%	66.66%	32%
	Directors cash remuneration (£)	45,265	17,625	30,000	58,750	44,587
<b>Shares owned by the Directors and other Insiders</b>	Fraction of IPO price paid	42.09%	12.93%	25.00%	100%	37.58%
	% equity bought before IPO	34.78%	13.33%	33.67%	53%	24.81%
	% equity bought on IPO	12.39%	0%	6.04%	19.59%	16.61%
	% equity owned after IPO	47.17%	28.78%	50.74%	63.95%	23.85%
	Discount Factor	26.22%	0%	24.06%	40.56%	22.95%
<b>Underpricing</b>		32.98%	2.53%	20%	41.19%	67.21%

*Table 3: Descriptive statistics of the sample for the 82 observations, except for deal value which includes only reverse mergers (61 observations). A board is considered independent if 50% or more of its members do not have business or personal relationships with the creators of the cash shell. The directors' remuneration does not include options or stock holdings. The percentage of equity is relative to the total shares outstanding after the IPO. Underpricing is measured as the difference between the closing price in the first day of trading and the IPO price, expressed as a percentage of the IPO price. The discount factor is equal to the fraction of the IPO price paid by insiders weighted by the fraction of post-IPO shares they bought at a discount.*

**Table 4: Buy-and-hold abnormal returns for outside shareholders and insiders**

		<b>1 year after IPO</b>	<b>2 years after IPO</b>	<b>3 years after IPO</b>
<b><i>Annualized buy-and-hold abnormal returns (BHAR) for shareholders</i></b>	Mean	14.73%	-13.26%	-17.40%
	Median	-18.32%	-23.50%	-23.53%
	Standard Deviation	135.40%	44.17%	32.12%
<b><i>Annualized buy-and-hold abnormal returns (BHAR) for directors and other insiders</i></b>	Mean	575.75%	89.46%	34.91%
	Median	151.73%	29.89%	15.72%
	Standard Deviation	1395.88%	216.59%	80.40%
<b><i>Fraction of shells with negative returns for the shareholders</i></b>		67.07%	67.07%	67.07%
<b><i>Fraction of shells with negative returns for the directors and other insiders</i></b>		12.20%	24.39%	39.02%
<b>N</b>		82	82	82

*Table 4: Annualized buy-and-hold abnormal returns (BHAR) for outside shareholders and insiders. The returns are corrected for underpricing and are computed as the annualized returns on the firms' stock, options and warrants minus the returns on the AIM all-share index for the same time period.. It includes warrants and stock options valued using Black and Scholes (1973) formula granted at or before the IPO. Shareholders' returns are corrected for underpricing by using the value of the shares and warrants at the end of the first day of trading as the basis to compute returns. When a company is delisted the buy-and-hold abnormal return annualized up to the moment of delisting is used.*

**Table 5: Regression of abnormal returns on firm characteristics**

Independent variables	Dependent variable					
	Annualized BHAR 1 year after IPO		Annualized BHAR 2 years after IPO		Annualized BHAR 3 years after IPO	
	Coef.	<i>t-stat</i>	Coef.	<i>t-stat</i>	Coef.	<i>t-stat</i>
DISCOUNT	-0.759	-1.040	-0.499**	-2.073	-0.521***	-3.524
IPOSHR	3.686**	2.555	0.346	1.167	-0.141	-0.721
IBOARD	0.290	1.020	-0.026	-0.356	-0.017	-0.277
LIQ	0.067	0.207	0.018	0.184	0.014	0.194
RMt	0.214	0.792	-0.171*	-1.785	-0.104	-1.298
ACQt	0.281	0.942	0.089	1.638	0.068**	2.491
EXPR	0.044	1.531	0.022*	1.674	0.015*	1.685
SERIAL	0.235	0.619	-0.148	-1.279	-0.079	-1.176
PRCDS	-0.067	-1.288	-0.016	-0.708	-0.006	-0.397
INDUSTRY	Yes		Yes		Yes	
Intercept	-0.826*	-1.747	-0.200	-1.166	-0.099	-0.736
Adjusted R-Squared	0.313		0.212		0.201	
N	82		82		82	

*Table 5: Regression of the annualized buy-and-hold abnormal returns (BHAR) one, two and three years after the IPO on firm characteristics. The returns are corrected for underpricing and are computed as the annualized returns on the firms' stock and warrants minus the returns on the AIM all-share index for the same time period. \*\*\*, \*\* and \* denote statistical significance at 1%, 5% and 10% level (two-tailed *p* test). See Table 1 for variable definitions. Shareholders' returns are corrected for underpricing by using the value of the shares and warrants at the end of the first day of trading as the basis to compute returns. When a company is delisted the buy-and-hold abnormal return annualized up to the moment of delisting is used. *t*-statistics are based on standard errors that are robust to heteroskedasticity.*

**Table 6: Robustness checks**

Independent variables	Dependent variable					
	(1) Annualized BHAR 3 years after IPO		(2) Annualized BHAR 3 years after IPO		(3) Monthly abnormal returns	
	Coef.	<i>t-stat</i>	Coef.	<i>t-stat</i>	Coef.	<i>P-value</i>
DISCOUNT	-0.338**	-2.132	-0.349**	-2.149	-0.0587***	0.003
IPOSHR	-	-	0.017	0.076	-0.0191	0.440
IBOARD	-0.020	-0.335	0.006	0.118	-0.0055	0.481
LIQ	0.014	0.200	-0.028	-0.367	-0.0003	0.974
ACQt	0.067**	2.472	0.058*	1.887	-	-
ACQt*	-	-	-	-	0.0039	0.303
RMt	-0.100	-1.276	-0.080	-1.026	-	-
RMt*	-	-	-	-	-0.0271***	0.002
EXPR	0.016*	1.769	0.004	0.422	0.0018*	0.052
SERIAL	-0.080	-1.203	-0.064	-0.943	-0.0099	0.198
PRCDS	-0.009	-0.589	-0.007	-0.377	0.0001	0.925
INDUSTRY	Yes		Yes		Yes	
YEAR	No		Yes		No	
OWNINS	-0.211	-1.070	-	-	-	-
Intercept	-0.061	-0.419	0.090	0.593	-0.0020	0.879
Adjusted R-Squared	0.208		0.279		0.3274	
N	82		82		2952	

Table 6: Regressions of the annualized buy-and-hold abnormal returns (BHAR) three years after the IPO on firm characteristics (models 1 and 2), and panel data model based on monthly abnormal returns (model 3). The panel data model includes random-effects and the reported R-Squared relates to the variation between groups. The returns are corrected for underpricing and are computed as the annualized returns on the firms' stock and warrants minus the returns on the AIM all-share index for the same time period in model 1 and 2, and as the monthly returns on the firms' stock and warrants minus the returns on the AIM all-share index for the same time period in model 3. \*\*\*, \*\* and \* denote statistical significance at 1%, 5% and 10% level (two-tailed *p* test). See Table 1 for variable definitions. YEAR are year dummies. OWNINS is the percentage of total equity owned by insiders after the IPO. ACQt\* is the number of acquisitions made by a cash shell until the end of month *t*\*. RMt\* is a dummy variable which takes the value one in case the cash shell performed a reverse merger until the end of month *t*\*. Shareholders' returns are corrected for underpricing by using the value of the shares and warrants at the end of the first day of trading as the basis to compute returns. When a company is delisted the buy-and-hold abnormal return annualized up to the moment of delisting is used in model 1 and 2, and the monthly abnormal return is used in model 3. *t*-statistics are based on standard errors that are robust to heteroskedasticity.



**Table 7: Comparison of subsamples sorted by directors' exit**

		<b>Firms with original directors' ownership 3 years after the IPO (A)</b>	<b>Firms where the directors sold all their shares during the 3 years after the IPO (B)</b>	<b>Difference (A-B)</b>
Annualized shareholder abnormal returns (BHAR) after 1 year	Mean	26.08%	0.67%	<b>25.41%</b>
	Median	-19.80%	-23.38%	<b>3.58%</b>
Annualized shareholder abnormal returns (BHAR) after 2 years	Mean	0.04%	-25.69%	<b>25.73%**</b>
	Median	-10.34%	-29.52%	<b>19.18%**</b>
Annualized shareholder abnormal returns (BHAR) after 3 years	Mean	-11.27%	-24.53%	<b>13.26%*</b>
	Median	-11.22%	-33.78%	<b>22.56%*</b>
Discount factor	Mean	20.67%	33.65%	<b>-12.98%**</b>
	Median	12.86%	37.99%	<b>-25.13%*</b>
Days to make first acquisition	Mean	400	355	<b>45</b>
	Median	271	386	<b>-115</b>
Shares at IPO	Mean	15.63%	12.20%	<b>3.43%</b>
	Median	8.53%	6.42%	<b>2.11%</b>
Number of Acquisitions	Mean	2.29	2	<b>29%</b>
	Median	2	1	<b>1</b>
Fraction of firms with a serial entrepreneur involved		20%	68%	<b>-48%***</b>
Fraction of firms doing a reverse merger		71%	91%	<b>-20%*</b>
N		35	22	

Table 9: comparison of samples' sorted by the directors' exit timing. \*\*\*, \*\* and \* denote statistical significance at 1%, 5% and 10% level for a Wilcoxon/Mann-Whitney test of equality of medians or a two-tailed t-test of equality of means. See Table 1 for variable definitions.