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## Death spiral convertible bonds

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## Death spiral convertible bonds

### Abstract

Death spiral convertibles, are a type of loan lenders give to a firm in exchange for a right to convert into equity at below market prices. This differs from traditional convertibles because there is no fixed conversion price. Instead, the price can be reset lower if the firm's stock price falls below the conversion price at the time of issuance. As the process repeats itself the stock's price spirals downwards. This process benefits the bondholders at the cost of the shareholders. Based on a hand collected sample of 23 companies issuing a total of 197 floating price convertibles, the stock price declined an average of 62.04% from the first issuance to the last issuance of a floating price convertible. On average the companies on our sample issued their first floating price convertible within one year of IPO. Companies that saw the greatest decline in stock price shared two important factors. First, their total floating price convertibles issued was over \$1 million. Second, they issued more than five floating price convertibles. Despite the floating price convertibles having negative effects on a company's stock price in general, the funds can keep the company alive. Three out of the 23 companies in our sample saw their stock price increase from the time of the first issuance to the last issuance of a floating price convertible.

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## Abstract

Death spiral convertibles, are a type of loan lenders give to a firm in exchange for a right to convert into equity at below market prices. This differs from traditional convertibles because there is no fixed conversion price. Instead, the price can be reset lower if the firm's stock price falls below the conversion price at the time of issuance. As the process repeats itself the stock's price spirals downwards. This process benefits the bondholders at the cost of the shareholders. Based on a hand collected sample of 23 companies issuing a total of 197 floating price convertibles, the stock price declined an average of 62.04% from the first issuance to the last issuance of a floating price convertible. On average the companies on our sample issued their first floating price convertible within one year of IPO. Companies that saw the greatest decline in stock price shared two important factors. First, their total floating price convertibles issued was over \$1 million. Second, they issued more than five floating price convertibles. Despite the floating price convertibles having negative effects on a company's stock price in general, the funds can keep the company alive. Three out of the 23 companies in our sample saw their stock price increase from the time of the first issuance to the last issuance of a floating price convertible.

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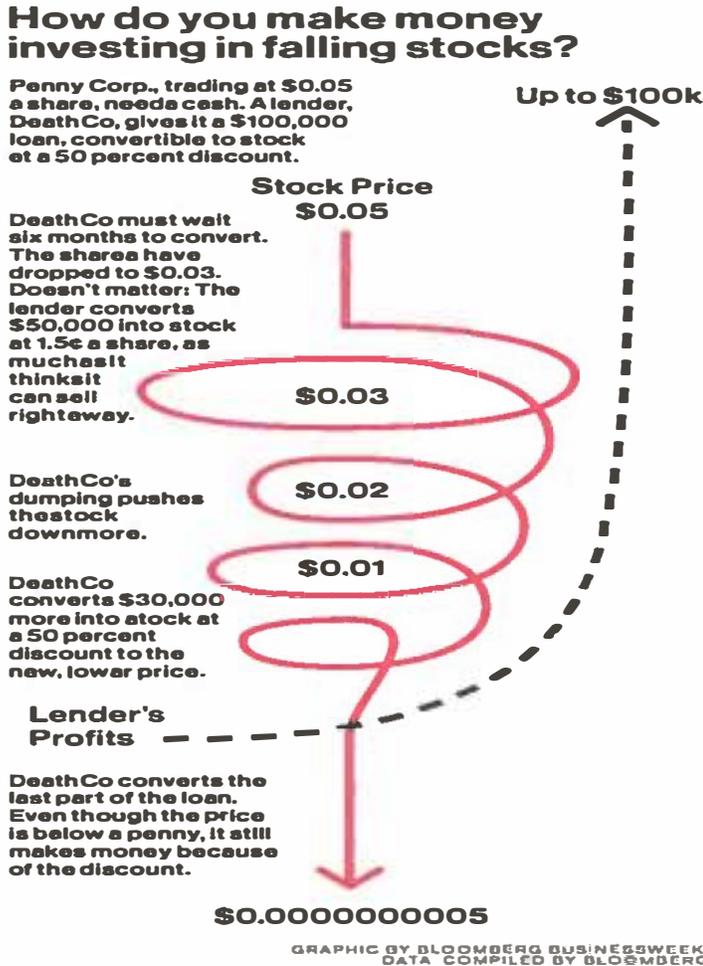
## Introduction

Death spiral convertibles or floating price convertible bonds (FPCs) are structured private investment in public equity (PIPE) deals. PIPEs are a way for firms to raise capital by exchanging equity for funds. The two kinds of PIPE deals are structured and traditional. A traditional PIPE lets investors purchase stock at predetermined conversion ratios. However, a structured PIPE allows investors to purchase stock of a company at below market prices, via a variable conversion discount. If the company's stock price goes down, the investor can still get it at discount which protects the investor from downside risk.

A floating price convertible is the name of a debt instrument that falls under the category of structured PIPEs. This debt instrument is fascinating because it is essentially a riskless investment for the buyer of the FPC. Unlike a fixed convertible, the buyer can always convert their stock at a discount from the market price. Fixed convertibles do not offer such discounts on stock price, and instead the buyer can only convert their bond into stock at a conversion rate specified by the issuing company. For example, if the stock is trading at \$1 the buyer can only convert once the stock goes above \$1. On the other hand, with FPCs if the stock is trading at \$2 they can get it for \$1; if it's trading at \$.01 they can get it for \$.005, and so on. No matter what price the stock is trading at the buyer can always "buy low and sell high." This discount can have a negative impact on a company's stock price because the buyers of these bonds can get massive amounts of shares upon conversion. The increase in the number of shares from the conversion causes dilution, which makes other stockholders' shares less valuable because they will own a smaller percentage of the company. The buyers then short sell the company and cover their shorts with discounted stock. This short selling further drops the stock price and causes the death spiral. The name "death spiral" comes from the decline in stock price and increased

dilution among companies that issue FPCs. Figure 1, from Bloomberg news, shows how the death spiral process works.

Figure 1



Based off of a hand collected sample of 23 companies issuing a total of 197 FPCs we found an average stock price decline of 62.04% from the first issuance to the last issuance of an FPC. Companies that saw the greatest decline in stock price shared two important factors. First, their total FPC debt issued was over \$1 million. Second, they issued more than five FPCs.

## Background

In March 2015, an article was written on Bloomberg Business week about a young immigrant making millions of dollars from penny stocks (Faux, 2015). What made this individual, Joshua Sason, unique compared to a typical penny stock trader is that he was not trading penny stocks, he was financing them. Penny stocks are known to be very risky, the SEC states that “investors in penny stocks should be prepared for the possibility that they may lose their whole investment<sup>1</sup>.” According to the Bloomberg article, 71 out of the 80 companies Sason had done business with had significant decreases in their stock price (Faux, 2015). Despite this, Sason still found a way to make millions of dollars without exposing himself to substantial risk.

The debt instrument Sason uses to finance struggling penny stock companies is called a death spiral convertible or more formally, a FPC. A typical convertible bond lets investors convert their bond into a company’s stock at a fixed conversion price. For example, Investor “A” buys a hundred \$1,000 face value convertible bonds from “XYZ Corp” which are convertible into 10,000 shares of XYZ Corp’s stock, mature in 5 years, and have a 6% interest rate. At the end of the maturity, Investor A can get the face value of the bond, \$1,000, plus an extra 6% in interest for total proceeds of \$106,000 ( $\$1,000 * 100 \text{ bonds} * 106\%$ ). However, if XYZ Corp’s stock price goes up to \$12 then Investor A can convert his bond into the 10,000 shares of XYZ Corp’s stock at \$12 a share, therefore yielding proceeds of \$120,000 ( $10,000 \text{ shares} * \$12$ ). Investor A would not want to convert his bond into stock if XYZ Corp’s share price was \$9 because his shares would be worth \$90,000 ( $\$9 * 10,000 \text{ shares}$ ) which is a loss of \$100 per bond.

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<sup>1</sup> Accessed at <https://www.sec.gov/investor/schedule15g.htm> 4/2017

What makes FPCs different than typical convertible bonds is that investors get a discount on the company's stock whether it goes down, up, or if the company cannot even pay back the principal. Say Investor A buys FPCs from XYZ Corp worth \$100,000, mature in five years, carry a 6% interest rate, are convertible into XYZ Corp's stock at a 50% discount, and Investor A can convert six months after the issuance of the FPC. If Investor A waits five years he will get the same return as in the previous example, \$106,000. However, Investor A does not really want to wait five years to make a 6% return, instead he wants the stock price to go down and actually begins to short it after the six months goes by. For the sake of this example let's say XYZ Corp's stock is trading at \$1 per share. After Investor A's short selling, the stock goes down to \$.80. Investor A converts \$50,000 into stock at a 50% discount at \$.40 for a total of 125,000 shares ( $\$50,000/\$.4$ ). Investor A then immediately sells his 125,000 shares at the current price of \$.8 for total proceeds of \$100,000 ( $125,000\text{shares} * \$.8$ ). Investor A's selling causes the share price to go down to \$.5. Investor A converts \$30,000 into shares at a 50% discount, \$.25 a share for 120,000 shares ( $\$30,000/\$.25$ ). Investor A then immediately sells at the current price of \$.5 for proceeds of \$60,000 ( $120,000\text{shares} * \$.5$ ). This final sale causes XYZ Corp's stock to decrease down to \$.01. Investor A converts the last \$20,000 at a 50% discount, \$.005 a share for 4,000,000 shares ( $\$20,000/\$.005$ ). Then Investor A immediately sells the 4,000,000 shares at the current price of \$.01 for proceeds of \$40,000 ( $4,000,000\text{shares} * \$.01$ ). In total, Investor A has made total proceeds of \$200,000 and doubled his profit in less than a year.

When markets are efficient investors have to sustain a given amount of risk for a given return. However, FPCs offer very low risk for investors and still yield high returns. The average discount in our sample was 55.43%. The only risk investors face is that there will not be enough liquidity for them to sell off their discounted stock. However, according to Faux (2005),

investors like Joshua Sason make sure that the companies they invest in have substantial liquidity before they lend them money (Faux, 2005).

Faux gives an example of this liquidity seeking by referring to Paul Riss, an entrepreneur creating a communications app called Pervasip to compete with Skype. Pervasip was down to its last \$100,000 when Sason's company, Magna, contacted it asking if it needed cash. Riss stated that when he was contacted by Magna all they cared about was the liquidity of the stock, "they want to see how many dollars are traded each month." Riss went on to say that Magna did not even ask one question about the app itself (Faux, 2005). Typically, investors care more about the product or service they're investing in and its potential for growth. However, as seen in the Pervasip example, before lending a company money, companies like Magna want to make sure there is enough liquidity within the stock so they can dump their shares.

The effect FPCs can have on a companies' stock price is detrimental. One of the companies in the data we collected, Maryjane Group (MJMJ), saw this first hand. Maryjane Group operates in the canna-hospitality sector, an industry they have claimed to pioneer themselves.<sup>2</sup> Maryjane Group runs two Bud and Breakfast locations in Colorado and provides consumers with cannabis friendly lodges to relax in. The company issued its first floating price convertible on August 8, 2014. The value of the FPC was \$61,600 and matured on February 13, 2016. In addition, the note carried an 8% interest rate and gave the buyer, JDF Capital Inc a 61% discount on the lowest daily average price 20 days before the conversion.

At the time of MJMJ's deal with JDF Capital, MJMJ's stock price was trading at \$.25. At the time of MJMJ's last issuance of an FPC on December 23, 2015, the stock was trading at

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<sup>2</sup> Accessed at <http://themaryjanegrp.com/> 3/2017

\$.0002. MJMJ ended up issuing 22 FPC's totaling over \$1.5 million from August 2014 through December 2015. The average interest rate these notes carried was 8.65% which is lower than the total sample average of 9.74%. In addition, MJMJ's average discount of 51.52% was also lower than our sample average of 55.43%. Despite MJMJ's average discount and interest rate being lower than our sample's average discount and interest rate, MJMJ's stock price still saw a massive decline. MJMJ's massive stock price decline is not unusual for companies issuing FPCs and all but three of the companies in our sample saw decreases in stock price from the time of the first issuance, to the last issuance of an FPC.

### **Literature Review**

The first known research on death spiral convertibles was done by Hillion and Vermaelen (2001). From 1995 to 1998, they collected 487 issues of floating price convertibles from 277 firms. By December 31, 1999, only 144 of the 277 firms were still listed. The causes for the 133 firms to be de-listed were either from bankruptcy, takeover, failure to meet minimum share price, minimum float, or minimum equity due to the effects of floating price convertibles (Hillion & Vermaelen, 2001). Hillion and Vermaelen (2001) also found that investors who bought common stocks in companies that issue floating price convertibles lost, on average, 34% of their investment a year after the issue. In addition, in 85% of the cases the one year post announcement returns were negative. What makes this majority of negative returns surprising is that it was during one of the strongest bull markets in U.S. history.

Since floorless convertibles are private placements, they are not covered by typical data sources. As a result, Hillion and Vermaelen (2001) used the SEC-Edgar database to gather and analyze S-3 and 8-K filings. They found that over the course of four years there was on average, 15 issues of floating price convertibles a month. The sectors with the most issues were

technology and medical, which counted for 50% of the total 277 firms analyzed. The average stock price of these firms at the time of the issuance of floating price convertibles was \$5.125 (Hillion & Vermaelen, 2001). Furthermore, 85% of firms experienced negative returns the year after the issue of floating price convertible bonds. In addition, companies that had multiple issuances saw their stock price decline 50% the year after the issuance.

When an investor acquires a floating price convertible bond the average waiting time till he/she can convert is 86 calendar days. In addition, the value of the convertibles was 92% more than the cash given by the investor. The average stock price discount given to investors was, 20%, however it reached almost 50% in some cases. This significant discount makes the floorless convertible a great instrument for short selling. In traditional short selling the investor has to repurchase shares to close his/her position, however, this can be very risky with low liquidity stocks. Floorless/floating price convertible bond holders avoid this risk because the bond can always be converted at a discount of the lowest trading price, thus yielding the holder more shares of the stock from the company (Hillion & Vermaelen, 2001). Despite the assumption bond holders would short the stock, only 58 cases out of 487 issues had offer prospectuses that prohibited short selling of the company's stock. Surprisingly, in 409 cases the holder was explicitly told he/she could short sell. However, FPCs can be helpful for small risky firms that can't receive any other sort of financing. The best way for a company to minimize their risk of being delisted while issuing floorless convertibles is to reduce the discount percentage (Hillion & Vermaelen, 2001).

Floating price convertibles give investors the option to either take wealth from other shareholders, and/or gain voting control of the firm. Since short selling often goes with FPCs, firms can refuse to honor an investor's conversion request, however it exposes the firm to the

accusation that it breached a contract (Finnerty, 2005). The issuing firm most likely already has monetary trouble, hence the decision to issue FPCs, so the firm may not have enough cash to even consider getting into a legal battle with a lender.

According to McClearn (2002), Houston lawyer, Wes Christian, states that death spiral financing rings work by scanning the Over-the-Counter Bulletin Board for vulnerable companies with high volume. The liquidity and float of the target company are taken into mind so the lenders can see how much they can pump and dump the stock. Christian says that once the lender promises to go through with the lending deal; the death spiral ring begins to short sell the company's shares (McClearn, 2002). As the stock price goes down, Christian says the lender may say "We're gonna stick with you buddy. We're in it for the long haul." Going further with the example, Christian says the lender may say "We're going to loan you \$3 million during the first tranche, and \$25 million on the second tranche. But, incidentally, we're not going to give you that second tranche if your stock falls below \$1.50 (the stock price is trading at \$7 per share)." With this in mind, Christian states that the company may think to itself, "Hell, it ain't going below \$1.50 — not with this money behind it." However, the death spiral financing ring continues to short the stock so they can be off the hook \$25 million. Christian says, "Rarely have they funded the second tranche."

According to McClearn (2002), Brian Overstreet, a private placement expert and president of San Diego-based PCS Research Technology Inc. states that "Once the stock starts trending down, a lot of people jump on the bandwagon, and it can get real ugly real fast." As the stock price begins to decline the lenders begin to demand conversions to use their discounted shares to cover their short positions, thus leading to the imminent death spiral phenomenon (McClearn, 2002). Christian suspects the money from the first tranche actually comes from the

lenders short selling profits, saying that “They frigging lend you your own money!” Overstreet states that victims of death spiral deals who try to bring their case to court “Have a tough time coming into a courtroom and claiming to be a clean-hands defendant.” In addition, Overstreet says, “More often than not, the issuer knows that they’re getting into bed with someone of lesser stature than Goldman Sachs or another top-tier brokerage. Yeah, they may have screwed you, but you probably knew it was coming.”

Hoffer (2010) states that the SEC is too strict in regards to cracking down on PIPE transactions. PIPE transactions can be very helpful to small companies that desperately need cash. A PIPE deal can give that small company enough cash to push its idea forward. Hoffer acknowledges the death spiral phenomenon associated with FPCs, but states that these debt instruments have become less popular since the late 1990s. The decline in death spiral convertibles is due to increased competition among hedge funds which gives PIPE issuers better deals, increased SEC scrutiny of PIPE deals, and increased awareness among PIPE issuers of the dangers of FPCs (Hoffer, 2010).

Floating price convertibles are PIPE deals, private investment in public equity. A traditional PIPE has a fixed conversion price, however, a structured PIPE has variable conversion rates. Structured PIPEs give investors the incentive to short the PIPE issuing firm’s stock during the conversion period to redeem their convertibles for more shares (Brophy, Oumiet, & Sialm, 2004). The SEC warns against structured PIPEs stating it encourages investors “to engage in manipulative short selling of the issuer’s stock in order to receive more shares.<sup>3</sup>” Companies issuing traditional PIPEs tend to see better long term stock prices than

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<sup>3</sup> Accessed at <https://www.sec.gov/news/press/2003-26.htm> 3/27/2017

companies that issue structured PIPEs. During the following year of issuing a traditional PIPE a firm sees a return of -8.4%. However, during the following year of issuing a structured PIPE a firm sees a return of -30.6% (Brophy, Oumiet, & Sialm, 2004). Institutional investors primarily purchase traditional PIPEs, while hedge funds purchase 72% of structured PIPEs (Brophy, Oumiet, & Sialm, 2004). The type of companies issuing structured PIPEs have fewer assets, lower book to market ratios, and lower leverage than companies issuing traditional PIPEs. This makes it a lot harder for these firms to receive traditional financing such as bank loans, makes them turn to structured pipes as they are the only way to finance their operations.

### Data

Floating price convertible bonds are private placements in public equity which makes them very hard to find on traditional databases such as Bloomberg Terminal or Mergent. In order to find our data we had to hand collect it. This approach involved using Google by searching for companies issuing floating price convertible bonds. By simply typing in different variances of “companies issuing floating price convertible bonds” into Google we were able to look through message boards such as Investorhub.com and see if users commented whether a company was issuing FPCs. After we found a company a user mentioned doing such type of financing, we then looked through that company’s 10-Ks on the SEC-Edgar database to see if the company was actually issuing FPCs.

Once we confirmed that a company was issuing FPCs we looked at the details of the FPC written in the 10-k. These details were the conversion discount, interest rate, issue date, maturity date, and the dollar value of the FPC. We then used Nasdaq.com, Google Finance, and Yahoo Finance to look at the stock price of each company at the time of each FPC issuance, number of

conversations on Yahoo Finance, whether there was insider trading, and how long it took a company to issue its first FPC (IPO to first issuance).

We ended up collecting a sample of 197 FPC issuances from 23 companies from 2009 to 2016 and a total amount of FPC debt totaling to \$29,589,735. Hand collecting the data took very long and in Hillion and Vermalen’s (2001) research they were able to collect 487 issuances from 287 companies because they had three years to collect data. In our case we only had about one school semester.

According to Table 1, the conversion discounts ranged from 15% to 90%, with a standard deviation of 15.44%, and an average discount of 55.43%. On average, buyers of the FPCs in our

Table 1  
Summary Statistics: Floating Price Convertible Bonds

	Mean	Median	Std Dev	Min	Max
Discount	55.43%	50%	12.97%	15%	90%
Interest Rate	9.74%	8%	4.23%	0%	36%
Value per FPC	\$145,048	\$52,750	\$ 354,016	\$3,000	\$3,000,000

sample were getting a company’s stock at half the price upon conversion of the FPC and in some cases even 10%. Hillion and Vermaelen’s (2001) average discount in their sample was 20%.

The highest discount they found was 48%. This was surprising for us because we thought increased competition among lenders would lower discount rates as stated by Hoffer (2010).

However, our average discount was higher than Hillion and Vermaelen’s (2001) highest discount. According to their study, the higher the discount, the worse a firm’s share price performed over time. In Hillion and Vermaelen’s (2001) study their average stock price decline was 34%. In our study it was 62.04% as seen in Table 2.

Table 2

Summary Statistics: Floating Price Convertible Bonds	
Avg Stock Price Decline	62.04%
Avg Conversations on Yahoo	320
Avg Years Since IPO	1
Total Amount of FPC Debt	\$ 29,589,735

The average interest rate carried on the FPCs was 9.74% which is very high considering that the Fed Funds rate has stayed below 1% during the time frame of the data collected in our sample. The highest interest rate was 36% and the lowest was 0%. Our hypothesis on why a company would issue a 0% interest rate bond is because they never planned on paying it back and knew the buyer of the bond would end up converting the bond into discounted shares.

Out of the 23 companies in our sample 19 issued FPCs within one year of their IPO, suggesting that these companies may have a hard time receiving debt funds from banks. Furthermore, on average, the stock prices of the companies in our sample declined 62% from the issuance of their first FPC to the last issuance of an FPC. The largest decline in stock price was 100%, while the highest increase was 34.18% as seen in Table 3. The industries ranged from mining to beverages, however, some of the more common ones were cigarettes, prepackaged software, and business services as seen in Table 2. We did not include the price change for Flasr Inc because they issued their FPCs only within a couple weeks of each other. We did not think this would be enough time to see the effects of the FPC on the stock price. In addition, we did not include stock price decline for firms that only issued one FPC because we were only looking at the stock price from first issuance to last issuance. It is important to note that only three companies in our sample had positive returns from the time of the first issuance of an FPC to the last. Hence, maybe the FPC's gave enough money to the company to invest in cash generating projects.

Table 3  
Individual Company Information

Company Name	Number of Issues	Stock		Total FPC Debt	Industry
		Price Change	Avg Discount		
MaryJane Group	23	-100%	51.52%	\$ 1,652,971	Amusement and recreation
SunPeaks Ventures	5	-93.33%	80%	\$ 2,765,000	Metal mining
Bioheart	24	-99.26%	51%	\$ 1,663,337	Physical and biological research
FBEC Worldwide	18	-99.25%	47%	\$ 1,134,683	Beverages
Cannasys Inc	8	-34.48%	52%	\$ 596,655	Business services
CoroWare Inc	26	-95.83%	52%	\$ 1,913,944	Prepackaged software
SeanieMac Intl LTD	5	-83.33%	45%	\$ 874,335	Communication services
Breathe Ecig Corp	15	-98.45%	53%	\$ 1,967,263	Cigarettes
Jammin Java Corp	4	-23.73%	63%	\$ 1,679,000	Food preparations
DTS8 Coffee Company	4	15%	62%	\$ 547,000	Groceries
Medifirst Solutions	7	-98.57%	55%	\$ 271,000	Cigarettes
Investview Inc	5	-84.56%	59%	\$ 2,062,121	Business services
Progreen US Inc	3	-65.83%	61%	\$ 576,000	Real Estate
Pocket Games Inc	3	34.18%	58%	\$ 124,000	Prepackaged software
Flasr Inc	6		42%	\$ 341,350	Plastic products
Ascent Solar Technologies	1		80%	\$ 2,800,000	Semiconductors
Boldface Group	1		90%	\$ 1,500,000	Business services
Terra Tech Corp	2	15.79%	69%	\$ 3,825,000	Engines and Turbines
Bemax Inc	1		48%	\$ 40,000	Converted paper
Labor Smart Inc	17	-44.44%	57%	\$ 2,126,750	Help supply services
Intelligent Highway Solutions	2		48%	\$ 639,026	Communication equipment
Greenfield Farms Inc	16	-98.63%	44%	\$ 436,300	Agricultural prod-livestock

Despite the overall negative effects of FPCs on the company's stock price we found that there was still activity on Yahoo Finance's message boards. However, none of the companies in our sample had any percentage of their stock owned by institutional investors which may show that big investors stay away from companies issuing FPCs.

The main trend we observed was the amount of FPCs a company issued. Companies that issued over 5 FPCs had negative stock returns from the first issuance of an FPC to the last. The three companies in our sample that had positive returns, Terra Tech, DTS8 Coffee Company, and Pocket Games Inc issued less than 5 FPCs. Discount and the amount of debt did not correlate

with a trend because Terra Tech, DTS8, and Pocket Games Inc had discounts larger than the mean.

### **Conclusion**

Despite FPCs having a negative effect on a company's stock price, none of the companies in our sample went bankrupt. It can be said that maybe the issuance of these FPCs may have saved the various firms in our sample from imminent bankruptcy. Even though the shareholders of the firms saw, on average, a -62.04% return, the companies still exist. It cannot be concluded whether the companies in our sample will be around for much longer, but to our surprise there were still investors actively talking on Yahoo Finance's conversation board about the stocks in our sample. All in all, companies that issue FPCs must do so because they cannot receive alternative financing. Despite the FPCs having negative effects on a company's stock price, the funds can keep the company alive.

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