Resurgence and the Biotech Industry

William J. Kridel Jr., Founder and Managing Director
Ferghana Partners Group
Despite the economic crisis, stock markets have regained ground and have steadily been on the resurgence since April of 2009.

The NASDAQ Biotech index has outperformed the general market across the January 2008 – September 2009 time frame.

The collapse had less impact on biotech than on general markets.

Markets have experienced a resurgence since March of 2009.

Source: Thomson Financial
Financing Has Returned, The Drought Seems to Be Over…For Now

The IPO window has finally cracked open a bit after being shut for over a year.

Financing for the three quarters ended 3Q09 has already exceeded the amount of financing raised in the entire 2008… but IPOs are still scarce.

**Quarterly Financing Trends: 1Q07 – 3Q09**

**Yearly Financing Trends: 2006 – YTD 3Q09**

*Source: BioCentury Online Intelligence*
Venture Capital Overview

VC Activity Across All Industry Sectors

- Across all sectors, VC’s invested $4.8B in 637 deals in 3Q09
  - Quarterly investment activity increased 17% in terms of dollars but fell 3% in number of deals compared to 2Q09
  - The increase in dollars invested was driven by several large rounds in the Clean Technology sector, which has been heavily subsidized by the government
- Annual investments for 2009 are expected to exceed $15B
- There is a gradual and deliberate industry shift towards a longer term VC investment strategy
  - VC’s increasingly focused on industry sectors that require multiple rounds of financing for an extended time horizon

Healthcare VC Activity

- Thru 3Q09, the healthcare sector raised $3.8B in venture capital
- In 3Q09 the healthcare sector raised $1.5B in venture capital
  - Biotech: $905M in 104 deals
  - Medtech: $617M in 71 deals
  - Services: $10M in 7 deals

Data through 9/30/09

Source: PricewaterhouseCoopers, BioCentury Online Intelligence
IPO and Follow-On Market Overview

IPO Sector Snapshot
- Overall, in 3Q09, there have been 15 IPO offerings across all industries, the most since 4Q07
- Healthcare IPO activity is growing a bit but recent post-IPO performance is not great
- 3 healthcare services and 2 biotech IPOs have been priced in 2009 raising almost $2B
- Financial sponsors (PE and VC) have been a primary driver of this recent spate of IPOs

Follow-On Sector Snapshot
- Follow-on activity has led the resurgence in healthcare financing
- 45 follow-ons priced in healthcare thru 3Q09, raising $6.9B in capital
  - 33 in Biopharma, raising $3.1B
  - 6 in Medtech, raising $1.1B
  - 6 in Services, raising $2.7B
- 29 follow-ons priced in healthcare in 3Q09, raising $3.6B in capital
  - 22 in Biopharma, raising $1.8B
  - 4 in Medtech, raising $1.0B
  - 3 in Services, raising $0.8B

Data through 9/30/09
Source: Dealogic
Equity Distribution Programs

What are Equity Distribution Programs (EDP)?
- EDP’s are an agreement between an issuer and an agent, whereby an agreed upon amount of capital can be raised via multiple draw downs “at the market” or at an agreed discount to market over a specified period of time
- The stock is offered pursuant to an effective shelf registration statement
- The draw down period is initiated at the issuers request and typically lasts 5-20 days. It is common to have a minimum threshold price below which the agent will not sell stock

EDP Snapshot
- EDP’s are increasing in popularity with 90 programs across all industries announced in 2009, vs 108 programs the preceding four year period
- 9 healthcare EDPs have been announced in 2009, accounting for over $200M

Data through 9/30/09  
Source: Dealogic
PIPE and Registered Direct Financements Overview

**PIPE (Private Investment in a Public Entity)**
- Across all industries, 149 PIPEs have been completed in 2009 raising over $16.6B
  - 41 PIPEs were completed for $2B in 3Q09, down 28% versus 3Q08 PIPE issuance
- 27% had warrant coverage
- 40 healthcare PIPEs have been completed in 2009
  - 31 common stock PIPEs, raising $625M
  - 9 convertible PIPEs, raising $265M

**Registered Direct (RD)**
- Across all industries, 90 RDs have been completed in 2009 raising over $2B
- 53% had warrant coverage
- 52 healthcare RDs have been completed in 2009, by far the most active industry sector to employ this instrument
  - 50 common stock RDs, raising $1.3B
  - 2 convertible RDs, raising $55M

*Data through 9/30/09* 
*Source: Dealogic*
## Alternative Sources of Financing [1/2]

<table>
<thead>
<tr>
<th>Source</th>
<th>Description</th>
</tr>
</thead>
</table>
| **Government Grants** | - Texas Life Science Foundation, CIRM and other state sponsored programs  
                        | - Small Business Innovation Research Grant                                
                        | - National Institutes of Health                                            
                        | - Department of Defense                                                    
                        | - NYC grants / equity                                                      
                        | - FDA                                                                       |
| **Foundation Grants** | - The Bill and Melinda Gates Foundation                                     
                          | - Michael J Fox Foundation                                                 
                          | - Rockefeller Foundation                                                   
                          | - Ford Foundation                                                          
                          | - MacArthur Foundation                                                    
                          | - Packard Foundation                                                       
                          | - Howard Hughes Medical Institute                                          |
Alternative Sources of Financing [2/2]

<table>
<thead>
<tr>
<th>Source</th>
<th>Description</th>
</tr>
</thead>
</table>
| Collaborative Development Programs | ▪ Specialist funds (e.g. Symphony Capital, Care Capital or Celtic Pharma) creates an entity to license and fund clinical development of product candidates from a company’s pipeline  
▪ The investee company retains the rights to take back the products after clinical trial results |
| Committed Equity Financing Facilities | ▪ Purchaser agrees to acquire a fixed amount of stock or a fixed $-value at a negotiated or specified below-market price over a specified period  
▪ The timing of sales are made at the issuing company’s discretion |
| Royalty Financing             | ▪ Royalty streams on marketed or soon-to-be marketed products are bought out by specialized firms such as Paul Capital, Royalty Pharma, and DRI Capital |
M&A deals dipped in 1Q09 (perhaps due to mega-mergers) but has increased in recent months.

Notable mega-mergers in 1Q09 (Pfizer / Wyeth and Merck / Schering) were executed largely to achieve cost synergies.

The next wave of M&A will likely be focused on therapeutic franchise build-out and revenue augmentation rather than cost savings.

**Screening Criteria:**
- **Target Business:** Biotech and pharmaceutical companies defined by Thomson Financial
- **Target Geography:** Global
- **Dates:** Announcement dates between 01/01/08 – 09/30/09
- **Deal Size:** Minimum transaction value of US$20M
- **Ownership:** 90% of shares outstanding owned post-transaction

Source: Thomson Financial
Noteworthy M&A Transactions

Blockbusting Mega-Mergers
- Pfizer’s acquisition of Wyeth for $67B
- Merck’s acquisition of Schering-Plough for $38B
- Roche’s acquisition of Genentech for $47B

Rising Importance of Emerging Markets
- Sanofi-Aventis acquired Brazilian generics firm, Medley Pharmaceuticals, for $660M
  - Sanofi-Aventis also acquired Laboratorios Kendrick in Mexico
- Novartis acquires an 85% stake in vaccine company Zhejiang Tianyuan Bio-Pharmaceuticals Co. Ltd. For $125M
  - Novartis also to invest over $1B to increase its R&D activities in China

Platform Deals
- Cephalon acquired Arana Therapeutics for A$328M
  - Acquisition gave Cephalon an antibody therapeutics franchise
- Sanofi-Aventis acquired Fovea for $130M
  - Provides Sanofi with Fovea’s pipeline of ophthalmic compounds and its proprietary discovery platform, used to discover factors that play a role in protecting retinal cells from degeneration

Source: Biocentury
In 4Q08, total transaction value fell despite the rise in deal volume; cash-strapped biotechs with no financing options succumbed to less than optimal partnering deals.

Deal volume fell significantly in 1Q09 (partly because Big Pharma was distracted with mergers?)

Partnering transaction activity has increased in 3Q09 toward a level approaching early 2008.

**The Partnering Landscape: January 2008 – 3Q09**

**Deal Volume and Transaction Value**

<table>
<thead>
<tr>
<th>1Q08</th>
<th>2Q08</th>
<th>3Q08</th>
<th>4Q08</th>
<th>1Q09</th>
<th>2Q09</th>
<th>3Q09</th>
</tr>
</thead>
<tbody>
<tr>
<td>$6,000</td>
<td>$8,000</td>
<td>$10,000</td>
<td>$12,000</td>
<td>$8,000</td>
<td>$6,000</td>
<td>$4,000</td>
</tr>
</tbody>
</table>

**No. Deals**

<table>
<thead>
<tr>
<th>Number of Deals</th>
</tr>
</thead>
<tbody>
<tr>
<td>12</td>
</tr>
<tr>
<td>18</td>
</tr>
<tr>
<td>24</td>
</tr>
<tr>
<td>30</td>
</tr>
<tr>
<td>36</td>
</tr>
</tbody>
</table>

**Source:** Medtrack

**Screening Criteria:**
- Date: Deals announced between 01/01/08 – 09/30/09
- Deal Size: Minimum transaction value of US$10M
- Deal Type: Partnerships and alliances in the biotechnology and pharmaceuticals market
Unsurprisingly, late-stage deals have garnered the greatest value in terms of upfront payments and total deal values. In addition to oncology, headlining deals have been made in the CNS space.

### Noteworthy Partnering Deals: January 2008 – 3Q09

<table>
<thead>
<tr>
<th>Date</th>
<th>Program(s)</th>
<th>Indication(s)</th>
<th>Source</th>
<th>Partner(s)</th>
<th>Phase</th>
<th>Upfront</th>
<th>Deal Size</th>
<th>Upfront / Deal Size</th>
</tr>
</thead>
<tbody>
<tr>
<td>2/4/08</td>
<td>AMG108, AMG317, AMG386, AMG479, AMG655, AMG706, Vectibix</td>
<td>Inflammation, Oncology, Pain</td>
<td>Amgen</td>
<td>Takeda</td>
<td>Various Clinical</td>
<td>300</td>
<td>1,177</td>
<td>25%</td>
</tr>
<tr>
<td>9/3/08</td>
<td>PF1913539, PF1913539 with Donepezil hydrochloride</td>
<td>Alzheimer's disease, Huntington's disease</td>
<td>Medivation</td>
<td>Pfizer</td>
<td>III</td>
<td>225</td>
<td>725</td>
<td>31%</td>
</tr>
<tr>
<td>12/12/08</td>
<td>BMS907351, BMS907351 with Erlotinib</td>
<td>Cancer</td>
<td>Exelixis</td>
<td>Bristol-Myers Squibb</td>
<td>III</td>
<td>195</td>
<td>535</td>
<td>36%</td>
</tr>
<tr>
<td>1/28/08</td>
<td>Alvesco, Alvesco Combo, Alvesco Allergy, Asthma HFA, Omnaris, Omnaris HFA</td>
<td>Acute radiation injury, COPD, Graft versus host, Crohn's, Meniscus damage, Osteoarthritis, Myocardial infarction, Type I Diabetes</td>
<td>Nycomed</td>
<td>Sepracor</td>
<td>II</td>
<td>150</td>
<td>430</td>
<td>35%</td>
</tr>
<tr>
<td>7/14/08</td>
<td>ACT078573</td>
<td>Insomnia</td>
<td>Actelion</td>
<td>GlaxoSmithKline</td>
<td>III</td>
<td>148</td>
<td>3,308</td>
<td>4%</td>
</tr>
<tr>
<td>11/4/08</td>
<td>Chondrogen, Prochymal</td>
<td>Acute radiation injury, COPD, Graft versus host, Crohn's, Meniscus damage, Osteoarthritis, Myocardial infarction, Type I Diabetes</td>
<td>Osiris Therapeutics</td>
<td>Genzyme</td>
<td>III</td>
<td>130</td>
<td>1,380</td>
<td>9%</td>
</tr>
<tr>
<td>9/21/09</td>
<td>NKTR118, NKTR119</td>
<td>Bowel disorders, Pain</td>
<td>Nektar Therapeutics</td>
<td>AstraZeneca Plc</td>
<td>II</td>
<td>125</td>
<td>735</td>
<td>17%</td>
</tr>
<tr>
<td>8/28/08</td>
<td>D23129, Retigabine MR</td>
<td>Epilepsy</td>
<td>Valeant Pharmaceuticals</td>
<td>GlaxoSmithKline</td>
<td>III</td>
<td>125</td>
<td>820</td>
<td>15%</td>
</tr>
<tr>
<td>7/1/09</td>
<td>Amaya</td>
<td>Multiple sclerosis</td>
<td>Acorda Therapeutics</td>
<td>Biogen Idec</td>
<td>PA</td>
<td>110</td>
<td>510</td>
<td>22%</td>
</tr>
<tr>
<td>1/22/08</td>
<td>NXL104 with Ceftaroline</td>
<td>Antibiotics</td>
<td>Novexel</td>
<td>Forest Laboratories</td>
<td>I</td>
<td>105</td>
<td>210</td>
<td>50%</td>
</tr>
</tbody>
</table>

Source: Medtrack