ISSN 1443-850X

Capital History - QRxPharma

Quarter	Type of Raising	Funds Raised ($M)
Q4 2013	Placement	$7.50
	SPP	$4.10
Q3 2011	Placement	$25.00
	Rights Issue	$1.51
Q4 2010	Placement	$14.00
	SPP	$5.80
Q4 2009	Rights Issue	$13.60
	Sub-total	**$71.5**
Q2 2007	IPO	$50.0
	Total	**$121.5**

Bioshares is published by Blake Industry & Market Analysis Pty Ltd.

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Individual Subscriptions (48 issues/year)
$400 (Inc.GST)
Edition Number 547S (23 April 2014)

Bioshares

23 April 2014
Edition 547S

Delivering independent investment research to investors on Australian biotech, pharma and healthcare companies.

Special Edition

FDA Panel Votes 14-0 Against QRxPharma's Moxduo

The FDA's Advisory Committee tasked with reviewing QRxPharma's (QRX: $0.70; In Trading Halt) New Drug Application for its pain drug Moxduo concluded its meeting earlier today (Australian Eastern Time) and later Tuesday (US Eastern Time). Moxduo combines the two opioids, morphine and oxycodone in a 3:2 ratio respectively. FDA Advisory Committees, which comprise of independent experts, are used to guide the agency's approval or non-approval decisions but are not binding.

The Advisory Committee was asked to discuss several questions, the first being whether data from Study 022 provided evidence of a clinical meaningful difference in respiratory safety between MoxDuo and morphine and/or Moxduo and oxycodone. A second question posed whether overall opioid adverse event data delivered evidence of a clinically meaningful difference in safety between Moxduo and morphine and/or Moxduo and oxycodone. Final questions included whether the FDA should approve Moxduo and if not, should QRxPharma be required to complete additional studies.

Study 022 is a pivotal component of QRxPharma's submission because it was designed to demonstrate Moxduo's relative safety to equivalent doses of morphine and oxycodone.

In its voting on these questions on all occasions, the Advisory Committee voted 14-0 against MoxDuo.

The Advisory Committee's view was that QRxPharma "had not provided sufficient evidence to support a claim that Moxduo is safer than morphine and oxycodone. The primary failure was in the study design and Committee's inability to rely on multiple post-hoc analyses. Future more, appropriate studies would be helpful in specifically answering the question. The Committee does not suggest that Moxduo is beneficial or not beneficial. The Committee simply believes the evidence is insufficient to make a determination."

The Committee concluded by saying there was no foundation for the approval for MoxDuo management of moderate to severe pain.

The FDA's Criticisms

The FDA recorded the following disagreements or criticisms of QRxPharma's claims in support of its application of Moxduo for the management of moderate to severe pain.

The FDA took issue with QRxPharma's proposed original labelling claim that "at morphine equivalent doses of 12mg MED (morphine equivalent dose), no patients treated with MoxDuo experienced a blood oxygen desaturation (<90% Sp02) compared to 1.6% of patients treated with morphine and 1.1% of patients treated with oxycodone in study centers with altitudes of less than 4000 feet above sea level", as well as a chart which showed that MoxDuo 6mg/4 mg against 12 mg morphine or oxycodone 8 mg, resulted in

9% of Moxduo patients suffering from nausea compared to 28% for those administered morphine and 27% for those administered oxycodone. Similarly for vomiting, the chart showed 6% for Moxduo, 21% for morphine and 21% for oxycodone. For dizziness, the chart showed 3% for Moxduo, 7% for dizziness and 12% for oxycodone.

However, the FDA summarised all of the data for Study 022, showing that the incidence of nausea, vomiting and dizziness was higher for Moxduo than for morphine or oxycodone.

The FDA also said that "pooled data from Studies 008, 021 and 022 showed that Moxduo-treated subjects did not consistently have a lower incidence or discontinuation due to nausea, vomiting or dizziness."

Concerning the safety issue of oxygen desaturation, the FDA concluded that there were no trends in the descriptive summaries in either the pooled data or preliminary data from Study 022. Although final data from Study 022 showed, according to QRxPharma, that Moxduo resulted in a lower percentage of subjects experiencing oxygen desaturation, the FDA commented that "a larger proportion of Moxduo subjects in the Moxduo group were placed on supplemental oxygen, and subjects in the Moxduo group had a higher average number of oxygen desaturations per subject…"

In Study 022, 22% of Moxduo subjects received supplemental oxygen compared to 16% for both morphine and oxycodone subjects. The mean number of desaturation episodes per subject was 18 for Moxduo, 13 for morphine and 16 for oxycodone, leading the FDA to conclude that "there were no differences in serious adverse events or discontinuations related to oxygen desaturation."

Another point of disagreement centred on QRxPharma's findings that oxygen desaturation events were lower for Moxduo when cut-off points below the pre-specified 90% figure were used (e.g 80%, 75%, 70%).

The FDA's conclusion was that QRxPharma has neither demonstrated a safety advantage for Moxduo over equivalent doses of morphine or oxycodone, nor had it demonstrated an efficacy advantage at comparable doses.

Commentary

The FDA will formally advise QRxPharma if its submission of Moxduo is successful on May 25, 2014. However, the current FDA review document shows that it is unconvinced that Moxduo satisfies the rules governing combination drugs, which is that the combination drug should be safer or more efficacious, or improve patient acceptance or quality of formulation, than the individual components.

Furthermore, given the unanimous views of the FDA Advisory Committee against Moxduo, it is unlikely that the FDA will approve Moxduo. There is always the possibility that it could direct QRxPharma to undertake more trials. However, it is unclear how additional Phase III trials, or supplementary trials similar to Study 022, would deliver the data that would elicit a positive response from the FDA.

A sticking point, it would appear, concerns the respiratory depression cut off points, with the FDA focused on the 90% blood oxygen saturation level. As a safety concern, respiratory depression increases in importance for the FDA for when Moxduo (or other opioids) might be administered at home and away from settings where oxygen can be administered.

The prospects for Moxduo are limited.

Bioshares recommendation: **Sell**

Bioshares

How Bioshares Rates Stocks

For the purpose of valuation, Bioshares divides biotech stocks into two categories. The first group are stocks with existing positive cash flows or close to producing positive cash flows. The second group are stocks without near term positive cash flows, history of losses, or at early stages of commercialisation. In this second group, which are essentially speculative propositions, Bioshares grades them according to relative risk within that group, to better reflect the very large spread of risk within those stocks. For both groups, the rating "Take Profits" means that investors may re-weight their holding by selling between 25%-75% of a stock.

Group A

Stocks with existing positive cash flows or close to producing positive cash flows.

Buy	CMP is 20% < Fair Value
Accumulate	CMP is 10% < Fair Value
Hold	Value = CMP
Lighten	CMP is 10% > Fair Value
Sell	CMP is 20% > Fair Value

(CMP–Current Market Price)

Group B

Stocks without near term positive cash flows, history of losses, or at early stages commercialisation.

Speculative Buy – Class A
These stocks will have more than one technology, product or investment in development, with perhaps those same technologies offering multiple opportunities. These features, coupled to the presence of alliances, partnerships and scientific advisory boards, indicate the stock is relative less risky than other biotech stocks.

Speculative Buy – Class B
These stocks may have more than one product or opportunity, and may even be close to market. However, they are likely to be lacking in several key areas. For example, their cash position is weak, or management or board may need strengthening.

Speculative Buy – Class C
These stocks generally have one product in development and lack many external validation features.

Speculative Hold – Class A or B or C

Sell

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