QUARTERLY ECONOMIC NEWSLETTER

EVE ONLINE
3rd Quarter 2009

CCP

QUARTERLY ECONOMIC NEWSLETTER

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Disclaimer

EDITORIAL

During the third quarter of 2009, EVE continued to emerge as a society. The Council of Stellar Management met with developers at CCP headquarters in Iceland. This was the session for the third council, and the fourth election is due in November. The Council of Stellar Management is one of the most innovative projects in the game industry, aimed at improving communication between the developers of a virtual world and its inhabitants.

Markets in EVE continue to evolve and strengthen as the population of EVE grows. Two distinct events this summer had considerable effects on the economy of EVE, but due to the efficiency of the markets these impacts were easily leveraged by arbitrage traders and industrial characters.

The first event was the change in respawn rates of Veldspar in high security areas, which increased the supply of Tritanium. Because this mineral is the basic building material for all items in EVE, the effect was felt on the mineral market and other markets as well. The interesting part is that although this change was unannounced, the market noticed the increased supply and the laws of trade soon took over, resulting in a price drop for Tritanium. This decrease led to a price drop in Tech I items, especially among ships, and a general reduction in overall prices in EVE.

The second event was operation "Unholy Rage". The goal of this multi-department operation was to remove real money traders from EVE. Their behavior reduces the quality of the EVE experience for other players and distorts markets by using methods which violate the game rules, with some cases going so far as account hacking and credit card fraud – both of which are criminal offenses in the real world. The operation put a big dent in real money trade operations in EVE, and is still ongoing. The overall market impact was small, but it affected the individual markets for some items quite severely. Both of these events are examined in more detail in this issue of the Quarterly Economic Newsletter.

Overall, the state of the EVE economy in Q3 2009 was healthy. Price levels are relatively stable, with some deflation due to changes in the game mechanics. Activity within the game is on the rise, particularly production and mission running. Monetary growth remains within reasonable limits. This continues the incredible momentum launched by Apocrypha earlier this year, and promises exciting times ahead when the next expansion, Dominion, is released on December 1st, 2009.

All of us at CCP would like to thank the pilots that continue to participate in this incredible, emergent experience of business and battles, friendship and betrayal, espionage and diplomacy.

The EVE experience was shared in person between pilots and developers at the epic Fanfest during the first weekend of October. Together, we celebrated yet another year for EVE– one more year towards EVE - Forever.

DEMOGRAPHICS

POPULATION

Q1 and Q2 of this year saw very good growth in the number of accounts for EVE Online. The growth continued throughout May, but as expected there is often an expansion hangover a few months after each release.

Apocrypha launched two months earlier than usual. It was not known how account numbers would be affected by not releasing an expansion in June, and in general pilots tend to fly less during the summer. It appeared that Q3 could be a challenging period for EVE but results were much better than expected. There was only a slight dip from the peak after Apocrypha, followed by some population growth during the summer months. Considering the massive removal of accounts due to Unholy Rage, we can say that 2009 continues to be a good year for EVE, which now has more than 300,000 active paying accounts. With the release of Dominion, which among other exciting new features includes a total remake of the sovereignty system, we expect the population in EVE to continue to grow in Q4 2009.

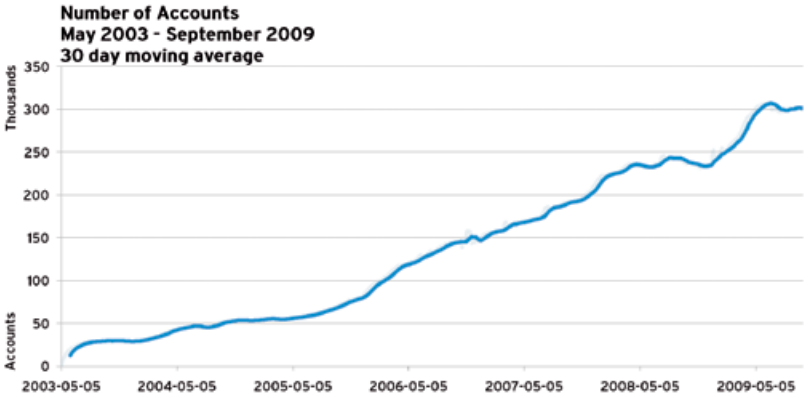


Figure 1: Number of accounts in EVE from 2003 to present. This figure decreased slightly three months after the release of Apocrypha. But positive growth was restored during the summer months, during which time Apocrypha 1.5 was launched as well as several different initiatives such as the Butterfly Effect video. Prospects for the rest of the year are good, with the next expansion, Dominion, to be released on December 1st. We therefore expect EVE to continue growing in Q4, 2009.

SHIP TYPES IN USE

In Q2 there was a significant change in the most popular ships used. The Raven fell from first place to sixth, and the Hulk took over as the most popular ship. This big change is attributed to the Unholy Rage campaign against RMT operations in EVE, since RMT mission runners were heavy Raven users.

By the end of Q3 the situation was relatively stable for the most popular ships. Table 1 shows the ten most popular ships from a snapshot taken at the end of Q3. The Hulk is still the most popular one, with 16,258 characters flying them at the time of the snapshot, or 2.49% of all active ships in EVE.

	Ship type	No. of ships	% of total
1	Hulk	16,258	2.49%
2	Drake	13,628	2.09%
3	Kestrel	11,269	1.73%
4	Rifter	10,998	1.69%
5	Retriever	8,923	1.37%
6	Raven	8,677	1.33%
7	Dominix	7,056	1.08%
8	Catalyst	6,866	1.05%
9	Bestower	6,680	1.02%
10	Condor	6,576	1.01%
	Rookie ships, shuttles and capsules	276,002	42.32%
	Other	279,205	42.81%
		Total:	**652,138**

Table 1: The ten most popular ships being flown at the end of Q3. The Hulk is still the most popular ship, followed by the Drake and Kestrel. The Condor, a small but agile frigate, is new on the Top 10 list. But the Punisher, an Amarr frigate, fell off the list. The difference, however, is relatively small, so we expect vessels in spots 10 through 20 to shift rapidly.

The Top 10 list has not seen any big changes, with the exception of the Punisher, which dropped to 12th place. The Condor advanced from 13th place to 10th, making the Top 10 for the first time.

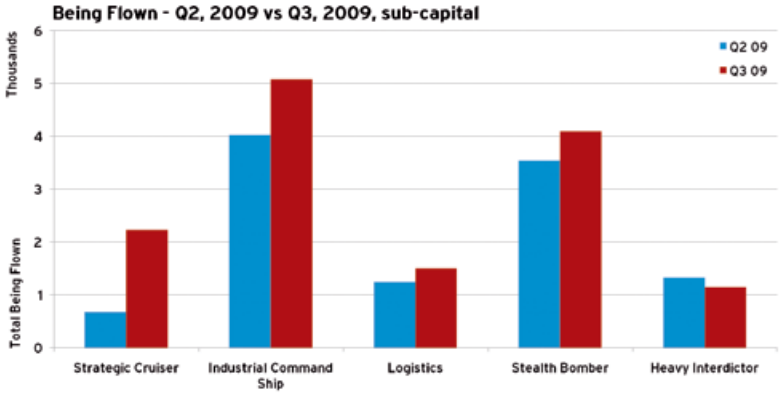


Figure 2: Ships being flown by category. The biggest increase, both absolute and in percentage, are the strategic cruisers followed by Industrial command ships –the only ship in that category being the Orca.

Strategic cruisers increased considerably in total numbers, rising from 675 at the end of Q2 to 2,227 at the end of Q3. The Orca also had a significant rise in popularity, with 5,085 of them active at the time this data was recorded. Stealth Bombers and Logistics Cruisers also had a significant rise in popularity last quarter, with Logistics increasing by 21.0% and Stealth Bombers by 15.6%.

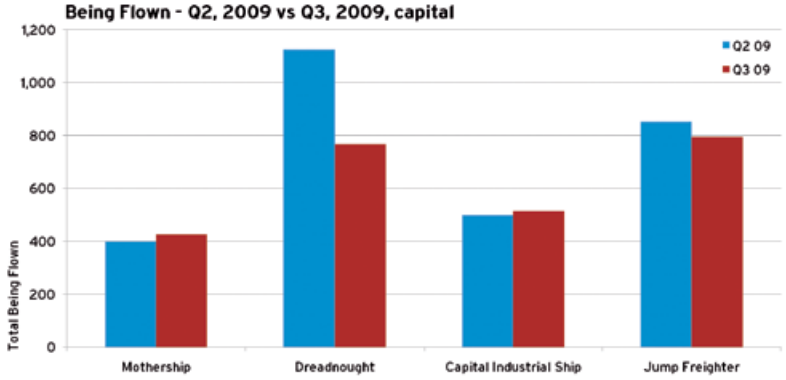


Figure 3: Ships flown by capital ship category. The number of dreadnoughts being piloted saw a considerable decline during Q3. Jump Freighters are now more popular than dreadnoughts showing a shift from warships to industrial ships.

During the last quarter, the number of characters piloting motherships (soon to be renamed to Supercarriers with the release of Dominion) broke the 400 mark, with 426 characters in motherships when this snapshot was taken. The number of characters in dreadnoughts declined considerably, from 1,125 to 767. One plausible reason might be lower interest in territorial warfare since the announcement of sovereignty system changes in Dominion. That would also explain the increased general interest in industrial ships, as corporations and alliances shift from war mode to production mode in preparation for Dominion. We have seen similar behavior prior to the release of other expansions.

The least popular ship group that we can report on was the Black Ops battleship, with only 225 characters piloting them at the time of the snapshot. The most numerous faction ship was the Apotheosis (a faction shuttle distributed to all users on EVE's fifth birthday), with 5,091 of them active, followed by the Raven Navy Issue, with 3,022 active. This is a decline in Navy Raven issue from 3,718 at the end of Q2, which can be largely attributed to the effects of Unholy Rage. After the Raven Navy Issue, the next most popular faction ship was the Megathron Navy Issue, with 499 active.

This overview shows that during Q3 2009 there was relative stability in the ship types used, though there is some shift towards capital industrial ships rather than combat ships.

All price indices for EVE are calculated as Laspeyres indices, in which the base is updated monthly based on total trade of individual items in the previous month. Within each index there is a variety of items ranging from eight items for the Mineral Price Index to more than 3,000 for the Consumer Price index.

MINERAL PRICE INDEX (MPI)

The Mineral Price Index (MPI) shows the price changes in all eight minerals used to produce ships and other items in Eve. Over the quarter the MPI fell by 4.1%. This began as inflation in July, but then turned into deflation in August and September.

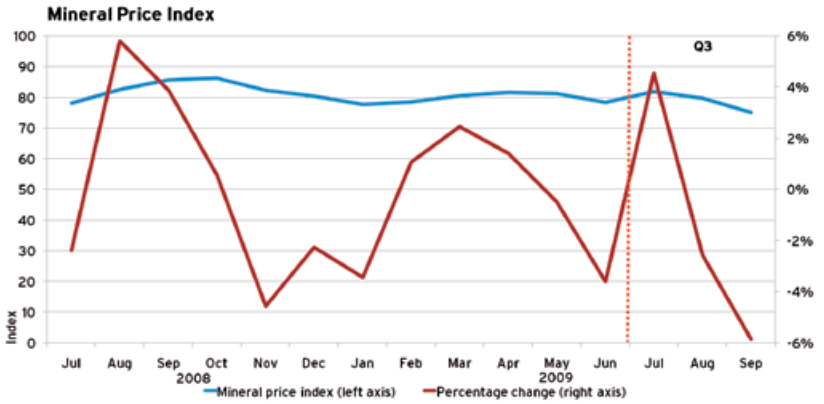


Figure 4: During the first half of the quarter, most minerals increased in price, resulting in inflationary pressure. This was offset by deflation in August and September. This deflation happened due to an increase in the respawn rate of Veldspar in high security space, late in Q2.

The inflation in July was caused by a price increase in all minerals except Tritanium, which fell slightly. The most significant price increases were in Mexallon and Megacyte. The August deflation was driven by a significant fall in Tritanium prices, while high-end minerals grew in price. September saw a continued fall in Tritanium prices while Mexallon started to fall as well. The price of other minerals was relatively stable.

LOW-END MINERALS

July witnessed a major drop in the traded volume of low-end minerals, in particular with Isogen, where volume dropped by over 19%. At the same time, the price of low-end minerals went up, with the notable exception of Tritanium, which fell in price by 6.9%.

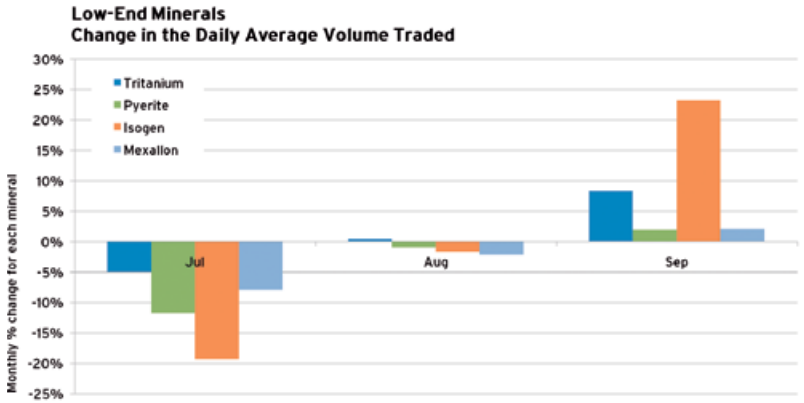


Figure 5: Volume traded in low-end minerals for Q3. A reduction in traded quantity is quite visible in July, with a complete turnaround by the end of the quarter in September. Unholy Rage and reduced player activity over the summer are the most plausible explanations for the drop in traded quantity in July and August.

The fall in volume and increase in price is attributed to operation Unholy Rage, which targeted macro users. Reduced player activity for the summer is another likely cause for this result. The large drop in missions run due to Unholy Rage resulted in a reduced supply of minerals reprocessed from mission loot, which in turn led to increased prices. As previously mentioned, the exception is Tritanium, which fell the least in volume and actually decreased in price as well. This is attributed to a change in the reseeding and respawn rate of Veldspar in high security space. This change was introduced on June 19th, three days before operation Unholy Rage started. The effect of the Veldspar change only impacted the supply of Tritanium, which is the reason why Tritanium volume and price changes differ from the other low-end minerals. Tritanium has continued to fall in price and is now falling towards 2.5 ISK per unit. We expect to see further turmoil in this market before the dust settles from these two events.

Volume and price levels for other low-end minerals were very stable in August. Again, Tritanium was the exception, falling in price by 17% while remaining stable in volume. Tritanium continued to fall in September, and Mexallon prices came down as well. This might be linked to increased mission running in September.

PRICE LEVEL CHANGES

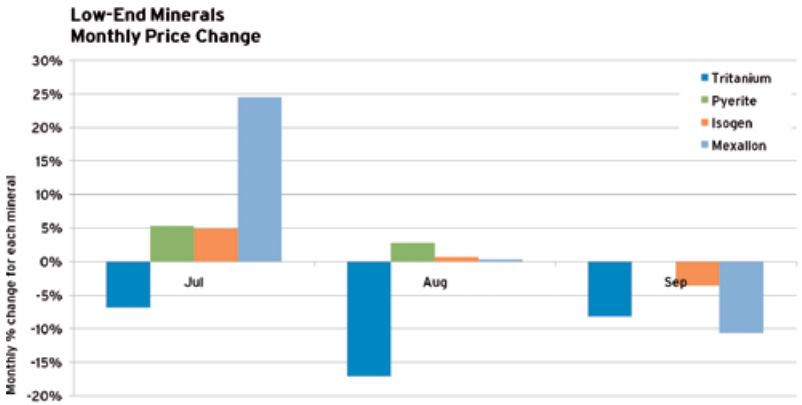


Figure 6: Monthly price change for low-end minerals. Price increases are attributed to a shorter supply in July for all minerals except Tritanium. In July there was relative stability between supply and demand for most minerals, with a price decline again in September.

For Q3, low-end minerals have decreased in price. This is mostly due to an increase in the supply of Tritanium, which is attributed to a game change that increased the respawn and reseeding rates of Veldspar in high security space. This change to the supply of Veldspar was done in order to increase the availability of Veldspar in high security space since empty asteroid belts had been to common for quite some time. The market is still trying to find where the new equilibrium is, so we can expect to see fluctuations in the price and quantity traded for Tritanium in Q4, with a downward trend in prices. The success of Dominion will play a large part in the price development over the next two months.

HIGH-END MINERALS

High-end minerals increased in price and decreased in volume in the beginning and middle of Q3, while the trends mostly reversed at the end of the quarter.

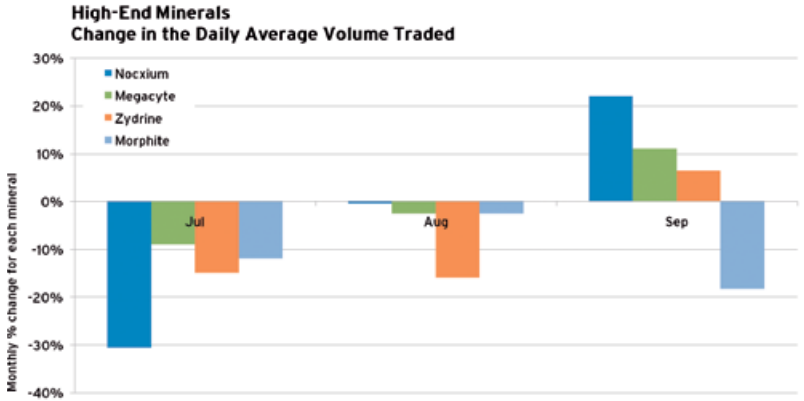


Figure 7: High-end mineral volume changes in Q3. The volume declined for all minerals in July and August, but increased for all but Morphite in September.

The general fall in volume and subsequent increase in price is attributed to reduced macro ratting as a result of operation Unholy Rage. The reversal of this trend in September could be a result of players taking advantage of the increased prices by doing the ratting themselves.

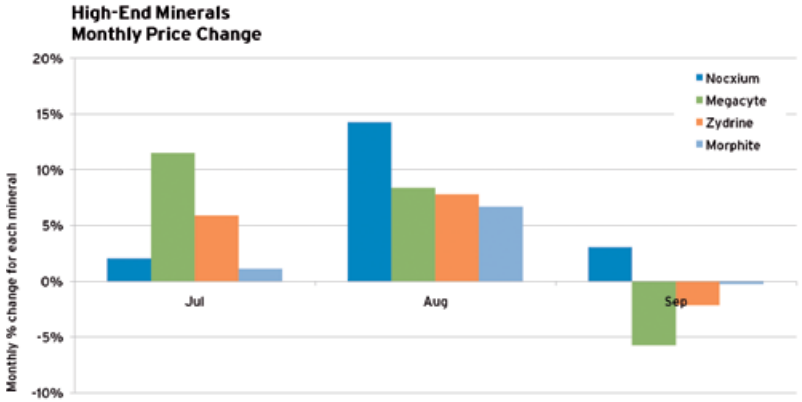


Figure 8: Price changes for high-end minerals. The price of high-end minerals increased in July and August with relatively more stability in September. Reduced supply due to Unholy Rage is the most likely reason for these price increases.

High-end minerals generally followed the same trend in Q3. Prices increased in July and August, only to decrease in September. The increased supply of Tritanium might trigger more production, resulting in increased demand for the high-end minerals, since these are usually required in relatively fixed proportions. Reduced macro activity due to Unholy Rage should also reduce the available supply. The usual growth in economic activity around expansions should also put pressure on the supply of high-end minerals. Most of this indicates that prices for high-end minerals will continue to rise in Q4.

PRIMARY PRODUCER PRICE INDEX (PPPI)

The Primary Producer Price Index consists of manufacturing items used for the production of other manufacturing items at the secondary stage. Manufacturing items used for the production of final consumer goods are excluded. The index includes such item groups as Drone Compounds, raw, processed and advanced Moon Materials, as well as items used in Invention.

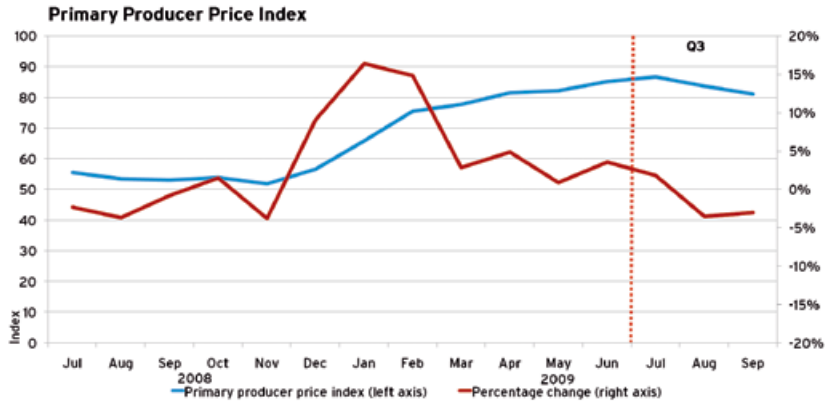


Figure 9: The Primary Producer Price Index declined in Q3, resulting in mild overall deflation in the quarter. However, prices are still higher now than they were at the beginning of the year.

This index had been rising since December 2008, when an exploit in the production of moon materials was discovered and fixed. This reduced the supply of moon materials during a period of growing demand for Tech II ships and modules. Prices were therefore bound to rise. Even without the effect of the fixed exploit, increased demand alone would most likely have caused a noticeable rise in prices, albeit a less severe one.

The first part of Q3 saw a continued inflationary trend in the PPPI, but this was sharply reversed to deflation mid-quarter—a trend that continued to the end of the quarter. The driving force behind the deflation was moon materials, but these make up two-thirds of the PPPI weight. The overall change in the index for Q3 was a deflation of 4.7%.

A corresponding change from inflation to deflation can be seen in the finished Tech II items (ships and modules) as discussed at the end of the chapter. It remains open to speculation whether this reversal is driven by reduced demand for the finished products or by changes on the supply side of the moon materials market.

SECONDARY PRODUCER PRICE INDEX (SPPI)

The Secondary Producer Price Index contains production materials and other production items that are used in the manufacturing of consumer goods, such as goods included in the Consumer Price Index.

There were significant changes in the prices of items within the index in Q3. July showed considerable inflation, while August and September experienced heavy deflation. The overall change in the SPPI in Q3 was a 7.2% deflation.

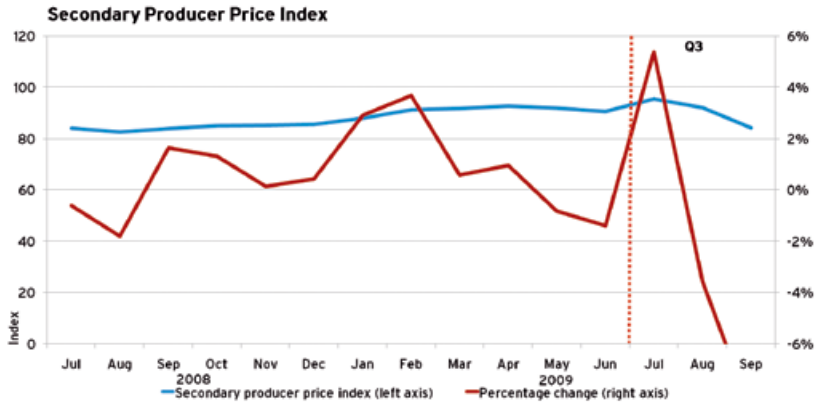


Figure 10: The Secondary Producer Price Index declined by 7.2% in Q3. This is a heavy reduction in prices and brings the price back down to August 2008 levels. The reason for this decline was the design change for rigs, which resulted in lower supply for salvage materials.

Inflation in July was 5.4%. The main reason behind the change was an increase in the price of salvaged materials. This was most likely caused by Unholy Rage, which curbed the operations of mission botters. This resulted in a major drop in the number of missions completed, which in turn reduced the supply of salvaged materials. Sleeper salvage also became more expensive, as did Tech II construction components, which is consistent with the price development of moon materials.

August saw prices in all item categories fall. Tech III materials dropped in price, which was the largest contributor to the decline in the index despite these materials having a fairly low weight within it. The price of other salvage materials also started to fall slightly as the number of missions run started to grow again. The deflation this month was 3.6%.

The deflation in the SPPI for September measured 8.6%, which is an exceptionally large decline. This drop was almost exclusively fuelled by a 24% collapse in the price of salvaged materials, which weigh heavily in the index. This was the effect of introducing different sized rigs, which is discussed further under the Consumer Price Index section.

CONSUMER PRICE INDEX (CPI)

The Consumer Price Index measures the overall price changes of consumer products. This is not limited to consumables such as fuel, ammunition or PLEXes, but also includes assets such as ships, modules, implants and starbase components. In summary, anything that isn't primarily used to produce other goods is included in the index, which contains over 3800 types of items.

The CPI showed considerable inflation at the beginning of the quarter, leveled off mid-quarter, and ended in significant deflation at the end of Q3. The overall change in the CPI for Q3 was a deflation of 1.9%.

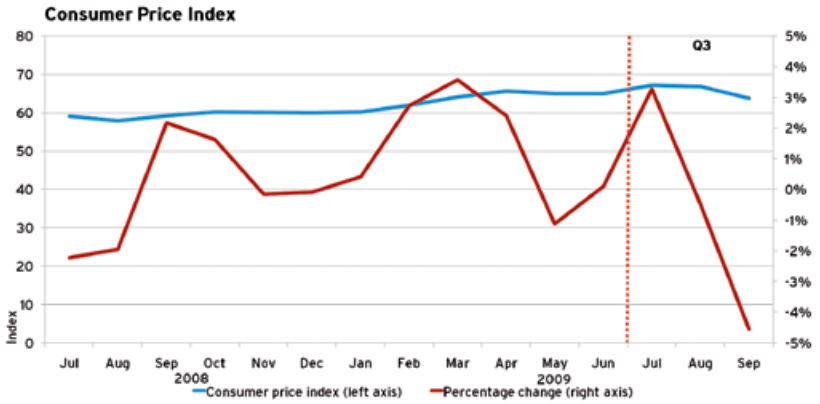


Figure 11: The Consumer Price Index was stable for the first two months of Q3, then declined considerably in September, resulting in an overall price decline throughout the quarter.

The inflation seen in July was largely caused by operation Unholy Rage, which targeted the operations of botters and macroers. This resulted in the banning of a large number of botting mission runners and miners. As a consequence, goods that had been heavily supplied by these parties, such as implants and fuel, saw a large increase in prices. At the same time, PLEXes as well as Tech III goods arriving from wormhole space fell in price. This reduced the inflationary impact of Unholy Rage, but the end result was still a 3.3% rise in the CPI from June to July.

August showed similar trends in the same product categories as in July, but not as drastic. In this case, the downward trends in PLEXes and Tech III outweighed the price increase in implants and fuel, resulting in a 0.5% fall in the CPI.

In September, fuel and implant prices started to fall again. Mission runner activity increased this month, which would explain the fall in implant prices. This increase in mission running may be due to more players being drawn to the profession as a result of increased financial rewards in the absence of mission botters. It is more difficult to gauge change in mining activity, but the fall in fuel prices does suggest a similar increase, also evident with the continued popularity of mining vessels. Another possibility is that fuel is already starting to lose some of its value due to the coming sovereignty changes in Dominion.

The largest contributor to the deflation in September was rigs. The introduction of different sizes of rigs caused a major fall in prices. The production of the medium and small version requires far less salvaged materials than the old ones, which are now categorized as large rigs. While the new rig sizes make it feasible to rig cheaper and more vulnerable ships than before, it also means that expensive ships such as Tech II cruisers and battlecruisers—which would typically have been rigged with the old large rigs—can now be rigged at much lower cost, due to the reduced material requirements. The resulting fall in the prices of salvaged materials then causes the production of large rigs to become cheaper as well.

The Tech II Price Index is a sub-index of the Consumer Prices Index. In other words, all the items in the Tech II Price Index are also in the CPI. It consists of both Tech II ships and Tech II modules.

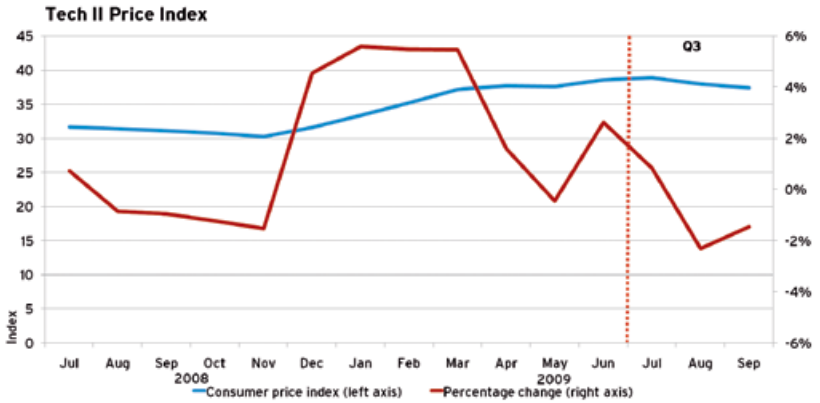


Figure 12: An Index for Tech II modules and ships. The inflation from December through February is mostly attributed to the starbase exploit that was discovered and fixed in December. In Q3 prices started to decline, resulting in an overall deflation as compared to Q2. But prices are still considerably higher than before the starbase exploit was discovered.

Tech II prices had been rising since December 2008, following the removal of the exploit in the production of moon materials. This trend appears to have peaked this summer, and the latter part of Q3 shows that Tech II seems to have entered a period of deflation, with prices falling by 2.3% in August and by 1.5% in September.

The reason for the decline in Tech II prices is not clear. It could be argued that the price increase following the exploit removal had developed into a bubble that was bound to deflate. Alternatively, one might hypothesize that the battling of RMT has made it more difficult for some players to acquire expensive Tech II ships. It does appear that some types of Tech II ships are selling in reduced volumes after operation Unholy Rage, such as HACs and Command ships. Then again, other Tech II ships seem to be gaining popularity, such as some of the Logistics ships and the Marauders.

SUMMARY

All four main indices show the same kind of price development in Q3: inflation in July, and deflation in August and September. Operation Unholy Rage is a recurring theme in explaining the changes that occurred this quarter. The introduction of new rigs also had a significant effect on the SPPI and CPI, while Tech II had a significant impact on the PPPI, SPPI and the CPI. Finally, changes in high security asteroid reseeding and respawning strongly affected the price of Tritanium, the most basic resource in Eve.

OVERVIEW

Massively multiplayer online games have been around now for twenty years – and even longer if we trace back the roots to the Multi User Dungeons (or MUDs) that were first developed in the late 1970s. Real Money Trade (RMT) began to surface as soon as online games had progressed towards greater numbers of participants and more persistent worlds, with documented cases emerging as early as 1989[1]. This is not surprising because whenever there is a shortage, people will find a way to exchange the items that are in short supply, regardless of whether the item or action is legal. RMT has grown in lockstep with the MMO industry, and is now estimated to generate somewhere between a 500 million to 1 billion USD in transactions annually. From an economic standpoint, this is a comparatively negligible amount. But RMT actions negatively impact the game world in which the RMT operates. This is why CCP launched a special RMT operation called "Unholy Rage" against RMT elements within EVE Online. The first news of the Unholy Rage campaign was published in a dev blog on August 17th. This section will continue that review and explain in greater detail the economic effects of the operation, as well as showing how RMT operations are impacting the game.

THE OPERATION

Fighting against RMT within EVE Online has been a frustrating battle for the game masters. Through their normal customer support work, they would often discover various RMT operations and ban the guilty parties. However, the GMs—who have always been closest to the issue—felt that we needed a more cohesive approach. This resulted in the creation of a taskforce composed of members from several departments whose goal was to identify, verify, and exterminate the operation of RMT elements within EVE Online.

The taskforce began planning in fall 2008, combining GM experience with data mining and requesting new tools for our customer support software. By February the team was ready to launch its first strike, and with the release of Apocrypha on March 10th more than 3,000 accounts were banned. But it was soon evident that although we could see the initial blow to RMT operations, the offenders regrouped and reestablished operations en masse, sometimes using accounts that had been dormant for months. Learning from this experience, the taskforce went back to work, designing a second assault that would be even more potent than the first run.

The second attack was launched on June 22nd, 2009 – a day that will be remembered within New Eden for years and decades to come. On that day, more than 6,000 accounts were banned in one stroke. The impact was immediate and substantial.

1 See http://terranova.blogs.com/terra nova/2006/01/the early histo.html and Ahmad, M., B. Keegan, J. Srivas tava, D. Williams, N. Contractor (2009). Mining for Gold Farmers: Automatic Detection of Deviant Players in MMOGs. Proceedings of IEEE, SocialComm-09.

THE IMPACT

The massive ban of RMT accounts gave us a much clearer picture of the impact that RMT operations were having on EVE Online. This impact can be categorized in three parts: Game operations, gameplay, and market impact. The biggest surprise was the effect that RMT operations were having on our hardware usage. Other categories gave results much closer to what we anticipated.

Let's look first at the impact on the hardware that runs EVE Online. When the accounts were banned, we saw a drop of nearly 30% in the average CPU per user.

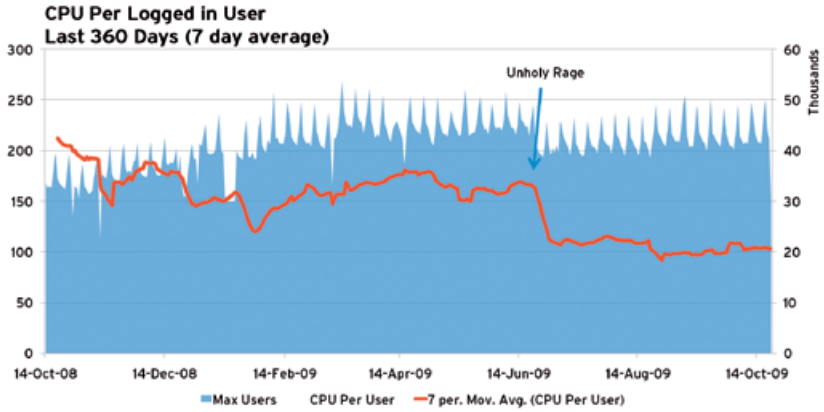


Figure 13: The figure shows the number of subscribers online at any given time (the blue shaded area) and the CPU per user (the red line). The red line is an index that provides information about the average load on our processors per user. In general, the lower this value is, the better the game performs, given that the game population is stable or growing.

The figure shows the number of subscribers online at any given time (the green shaded area) and the CPU per user (the purple line). The purple line is an index that gives us an indication about the load on our processors. In general, the lower this number is, the better the game performs. This figure dropped from 175 to 125, or close to 30% drop. The biggest reason for this drop is due to the fact that in many cases RMT operators were using macros when farming certain types of missions, in addition to using a lot of missiles during their mission operations. These actions require higher processing power than other actions, and therefore increased CPU usage disproportionally to the number of accounts involved in the RMT operations. At the time of the ban, there were just about 300,000 active accounts in EVE. As a result of Unholy Rage, some 2% of the total EVE population was banned in one shot.

Banning RMT operators frees substantial computing power for other players to use for normal gameplay, and thus improves overall performance for the game population. Another important benefit of removing RMT operations is less local congestion. Macro miners (including ratters and mission runners) are known to infest certain "mission hub" systems, causing increased load on specific nodes and degrading performance for other players in those systems. After the ban we saw a huge drop in the average population of several infested systems. One of the most drastic example was the Ibura system, which saw a 50% drop in the 20 minute average population following the ban.

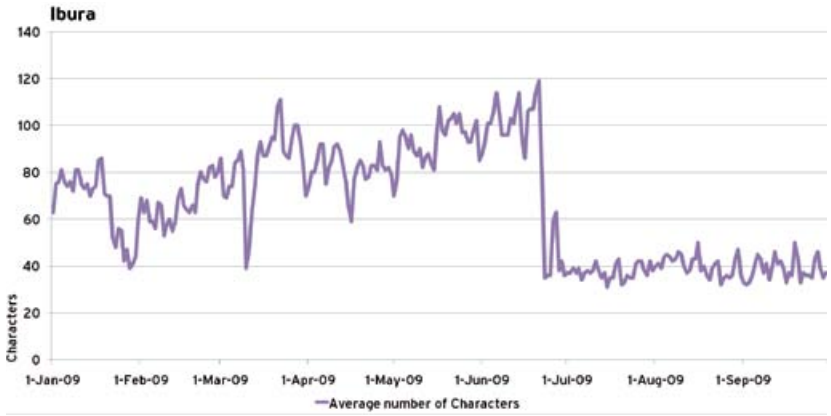


Figure 14: Population of the Ibura system. This graph shows the average population in20 minute intervals during each day. Unholy Rage more than halved the population in this system, showing the congestion impact of RMT operations.

Figure 15 shows the population of Ingunn from Q1 through Q3 in 2009. We can see the increase in the population in the first two months and then the drop after the first RMT operation in March, when Apocrypha was released. The RMT operators quickly returned to the game until the second attack was launched on June 22nd. Since then, we have not seen a significant increase in the population of Ingunn or other solar systems that were infested with RMT operations.

From a game design and operational perspective, Unholy Rage has shown how important it is to aggressively target and remove RMT operations from EVE Online. But what was the economic impact? What function, if any, do the RMT operations serve in the EVE economy?

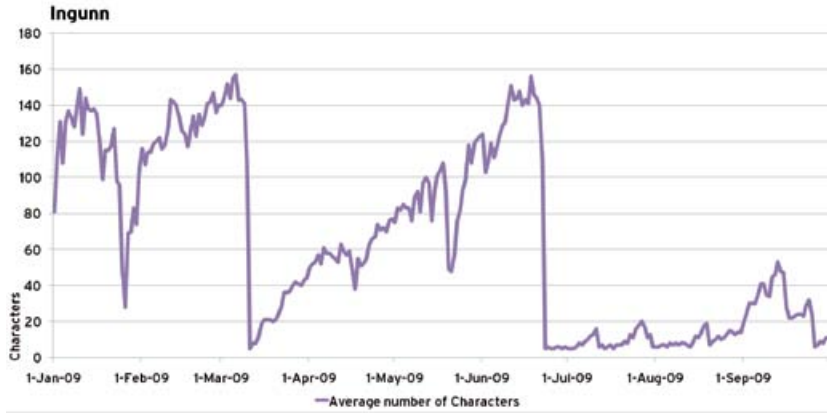


Figure 15: The population of the Ingunn system. This graph clearly shows the effect of Unholy Rage in June, but also the impact of the initial campaign in March. This system was well known to be infested with RMT operations.

Let´s first look at the impact on the market as a whole. When the ban was put into place, the total turnover on all markets in EVE declined. Figure 16 shows the daily market turnover in EVE from January 1st through September 30th.

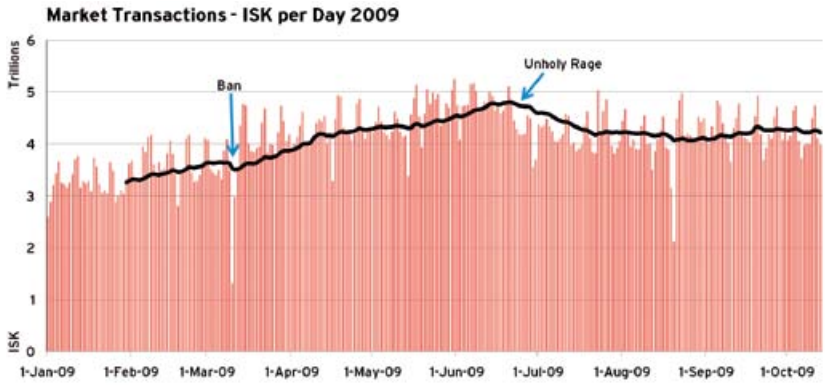


Figure 16: The daily market trade value in EVE. The daily trade value increased from 3 trillion ISK in January to just over 5 trillion ISK at its peak in June. After Unholy Rage there was a sharp decline when total trade value declined towards 4 trillion ISK per day. Once Apocrypha 1.5 was released, we saw slight growth in total trade value.

Since the launch of Apocrypha, the total trade in Ravens has amounted to about 1.4 to 1.5 trillion ISK per month, trading about 16 to 17 thousand units. In June, the total trade of Ravens was 17.3 thousand units, valued at 1.48 trillion ISK. In July, trade was valued at 1.28 trillion ISK, with volume of just under 15 thousand units. So the reduction in number of trades was about 11%, similar to the reduction in overall trade. This was somewhat surprising to us, since we expected a larger decline in the trade of Ravens. But the explanation was that RMT operators were using Navy Ravens as well. In Q2 there were 3,700 characters flying a Navy Raven, but by the end of Q3 there were just over 3,000 characters flying them. That is a 19% reduction in the number of characters flying a Navy Raven, proving that many of the RMT offenders were indeed using Navy Ravens in their operations.

The average daily market trade was reduced from 4.8 trillion ISK to 4.2 trillion ISK in the week after the ban, or by 11%. It bottomed out at around 4.0 trillion ISK in August, but has been increasing ever since. Overall, the impact on the market was relatively small, but still significant. The impact was similar on the total number of daily transactions, from 1.2 million transactions per day down to 1.1 million transactions.

To some extent, the impact on individual market segments and market items was greater. A sizeable share of the banned RMT operations were mission farming operations, often involving a Raven or a Navy Raven. Therefore, items related to missions such as cruise missiles and implants were significantly impacted.

Consider the most popular mission-running ship, the Raven. Since its introduction, it has been among the most popular battleships in the game's history.

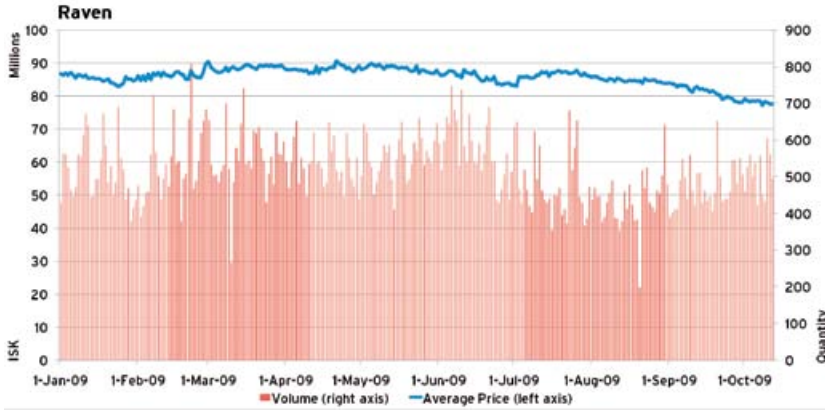


Figure 17: Number of Ravens traded each day from January through September. Prior to Unholy Rage the average price was between 84 and 90 million ISK. Price started to decline in early May, but quantity traded increased. On June 22nd quantity traded fell sharply but then recovered a few days later as prices started to increase again. This lasted about a month or so. Average price started to decrease in the beginning of August and continued to decline throughout the quarter.

Ravens primarily use missiles for firepower, and it is therefore interesting to look at the market for several different types of missiles. Our data indicates that the biggest changes were in the market for standard cruise missiles. An example is the Wrath cruise missile.

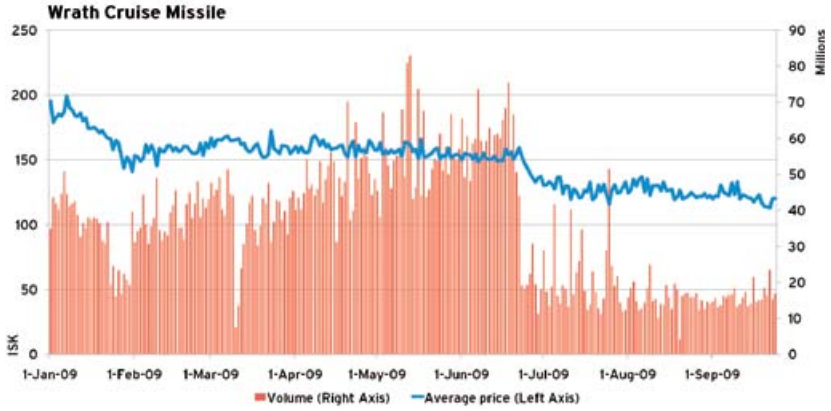


Figure 18: Wrath cruise missile. The impact of Unholy Rage caused daily average volume to drop by 67%, and price to drop almost 25%.

As soon as the ban took place, there was an immediate response in the market. The daily average volume sold dropped from about 60 million down to 20 million units, and has stayed at that level since. Price dropped as well, declining from around 155 ISK per unit to about 125 ISK per unit, and continues to drop. The same trend did not appear for torpedoes or other missiles. What this shows us is that the RMT mission farmers where highly specialized in their operations, focusing on specific missions in specific locations.

The most common item rewards in missions are implants, which are awarded once a pilot completes a storyline mission. These implants boost various different pilot skills and are generally in short supply. The implant category was the category that was most affected by Unholy Rage, specifically the five basic attribute enhancers: Ocular Filters, Memory Augmentation, Neural Boosters, Limited Cybernetic Sub-processors, and Social Adaption chips.

One of the best examples is the improved Cybernetic Subprocessor. This is a +5 implant that sold between 100 and 120 million ISK after the launch of Apocrypha on March 10th.

Figure 19: Average price and volume traded for improved Cybernetic Subprocessors. After the launch of Apocrypha on March 10th the price started to increase, while quantity was relatively stable at around 150 units sold per day. After Unholy Rage started on June 22nd , the price jumped to 140 million ISK, and quantity traded was reduced by a third.

The impact of Unholy Rage was immediate. Just a few days after the banning of 6,000 RMT accounts, price increased to approximately 140 million ISK per unit – on average, the price increase was about 35%. Total quantity was reduced by a third, from an average of 150 per day to just under 100 items per day. The spike in traded quantity towards the end of July is interesting. As a part of testing our criteria for identifying RMT operations, we lifted the ban on some accounts for a few days, closely monitoring what they would do once the ban was lifted. It turned out that they immediately went back to their old habit of farming the missions and selling the rewards, and also used the "opportunity" to sell some they had in stock. Of course they were banned again right away, but this showed us that we had at least found a significant part of the RMT mission running operations.

The story is the same for all the other implant augmentations. But what about other items that can be acquired in missions? When pilots take on missions they receive rewards in several different ways. Direct rewards are ISK and items such as the implants. Other rewards are items that can be looted from NPC wreckage, and then salvage materials from the wrecks themselves. Hence, if RMT mission farmers are banned, we should expect to see an impact on those items as well.

There are hundreds of Tech I items that can be looted from wrecks and either sold directly on the market or refined into minerals, which would then be sold on the market or used directly in production. In general, we did not see any significant impact on the market for Tech I items. This indicates that the RMTers were refining, rather than selling the loot. Looking at the mineral market, we can see a general decline in quantity traded for most minerals. More details on the price changes of minerals can be found in the discussion on the MPI (Mineral Price Index) in the price level section of this Quarterly Economic Newsletter. The general conclusion is that due to other factors affecting the supply of Tritanium and the relatively small volume and value changes in other minerals, the removal of RMT operations did have some impact on the mineral market, but it was small and short lived. Once again, the sheer size of the EVE market is such that no single entity is able to have a major impact on markets for non-specialized goods such as minerals.

The remaining question is what happened to the market for salvaged items. First looking at the index for salvage materials, we can see that in July the index increased to 106.8 from 96.9 in June – a 10.2% increase. So the impact on the salvage materials is quite visible. Since then, however, the salvage material index has decreased below 80 points with the addition of new categories of rigs. So the overall impact of Unholy Rage on salvage materials is generally a small one.

Figure 20: The Salvage Material Index. This index clearly shows the impact of the new rig design after mid-August. The impact materializes fully in September when average price declines by more than 20% between months.

The impact on individual salvage items was substantial. Alloyed Tritanium Bars, Armor Plates, Burned Logic Circuits, Tripped Power Circuit, and Fried Interface Circuits are all examples of salvage material items that increased in price by 20% or more in the days after the launch of Unholy Rage. Examining Tripped Power Circuits in more detail reveals an interesting story.

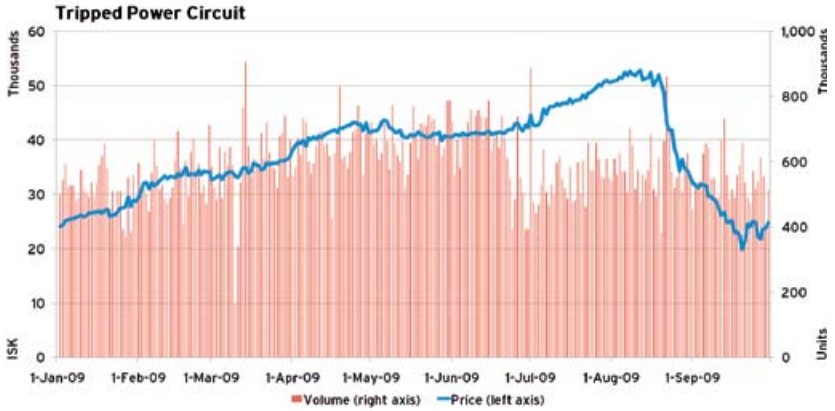


Figure 21: Tripped Power Circuit. Quantity traded daily (sum of volume) increased from January through June with prices increasing at the same time, indicating that there was excessive demand for the item. Once Unholy Rage started, the quantity traded fell from an average of 700 thousand per day to just over 500 thousand units per day. The launch of Apocrypha 1.5 and the introduction of the new rig system had a much greater effect on price, which fell from about 50 thousand ISK per unit to approximately 25 thousand ISK per unit.

With the release of Apocrypha, price continued to rise due to increased demand for rigs. This continued until early May, at which point price started to decline somewhat and quantity traded remained roughly the same. This shows that the market was stabilizing around that time. When the RMT accounts were banned, price started to increase immediately, rising by nearly 30% before peaking at about 55,000 ISK per unit in mid August, when Apocrypha 1.5 was released. With the new release came changes in the rig system that completely changed the demand for salvage materials. The price of rigs plummeted from 55,000 ISK down to 20,000 before increasing again to approximately 25,000 per unit. The impact of the rig design change was therefore much greater than the impact of Unholy Rage.

OPERATION UNHOLY RAGE

Operation Unholy Rage is still ongoing, and we therefore cannot provide any details about how it is conducted. There is no time limit on the operation thus far. To date, more than 18,000 paying accounts have been banned, plus considerably more trial accounts. However, the number of banned paying accounts does not represent the number of actual players involved. In many cases, our GMs are chasing the same offenders over and over again, banning them on one account just to find them again a few days later using another account. It is a good thing that our GMs now have powerful tools to find RMT operations more quickly than before.

Unholy Rage taught us a great deal about RMT operations in EVE. We now have a much clearer picture of the extent of operations and the tools and methods they use. It is also obvious that although certain areas and items in EVE Online have been impacted by RMT operations, the overall impact is relatively small. And the best way to get rid of RMT in EVE is not to buy ISK online.

CCP now offers an alternative method for players. Through the PLEX program, players can buy online timecodes, convert them into a PLEX item, and then sell the item on the in-game market in EVE. This is perfectly legitimate and safe for all players—and most importantly, it does not break the gameplay of EVE. In fact, the PLEX program enhances EVE by encouraging people to help each other with timecodes. People that have less time to play but high income can actually sell timecodes that players with more time to play can buy for in-game ISK. This allows people that do not have access to credit cards, or have low income, to actually enjoy EVE. And EVE becomes richer as a result, since there are more people participating in a way that conforms to the EULA and TOS.

PLEX differs significantly from illegal RMT operations. Under the PLEX program, no one can actually sell a PLEX for real-life currency—only ISK. This means that the incentives to earn ISK are game related rather than related to real life situations. So under the PLEX program, people are not earning a living by playing EVE, but rather are simply sharing the joy of playing the game. The only incentive for RMT operators is to make as much ISK as possible to sell for real-life currency, often resorting to exploits, credit card frauds, account hacking and other illicit behavior that we do not want within EVE Online.

The two pronged attack on RMT, Unholy Rage and PLEX, will only be successful if players cooperate with us by not buying illegal ISK and by using the PLEX system, helping others to play the game.

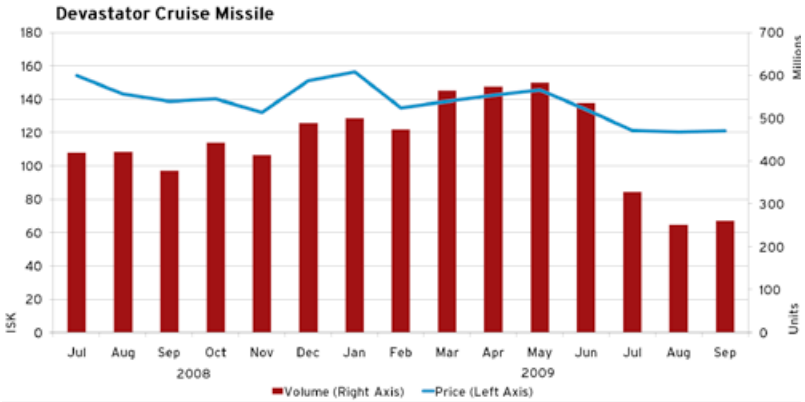


Figure 22: Devastator Cruise missiles deliver explosive damage to targets. The volume traded of this missile increased from July until the start of the Unholy Rage campaign. Since then, the volume traded has decreased by 50%, while the price has declined. This is due to the fact that real money trade accounts had been using this missile extensively.

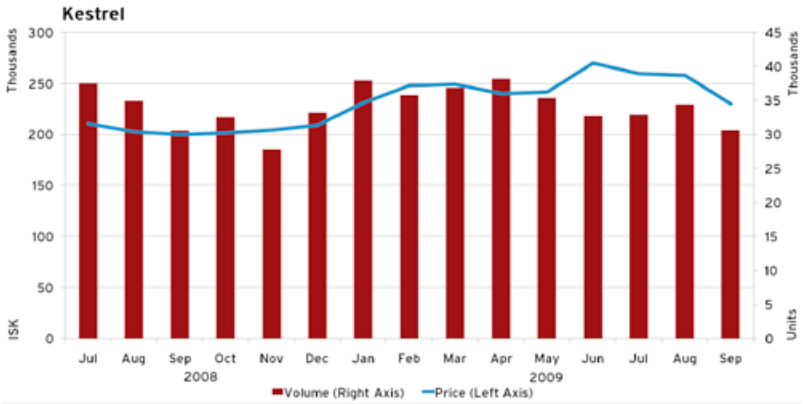


Figure 23: The Kestrel is the most flown frigate in EVE. The price trend of this ship has generally been positive for the last 15 months; however prices have decreased slightly in the last quarter. Even though the volume traded has dropped, the Kestrel remains the most popular frigate in EVE.

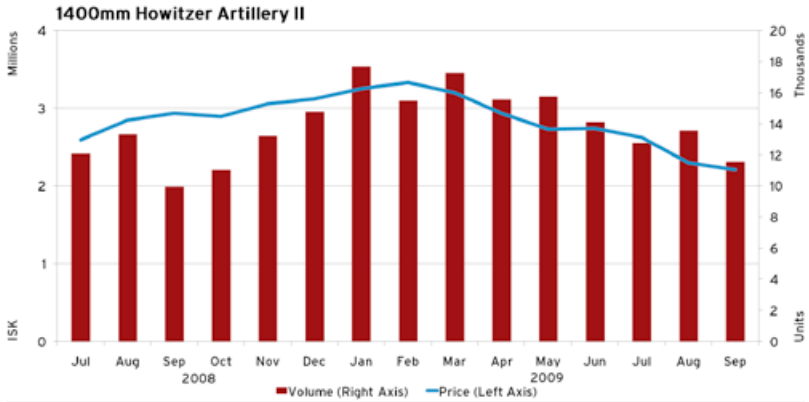


Figure 24: The 1400mm Howitzer Artillery II is a large projectile weapon. The prices of these have been decreasing since February. Since then, prices have fallen by 34%, and at the same time the volume traded has dropped by 25%. This development indicates a declining interest in these weapons.

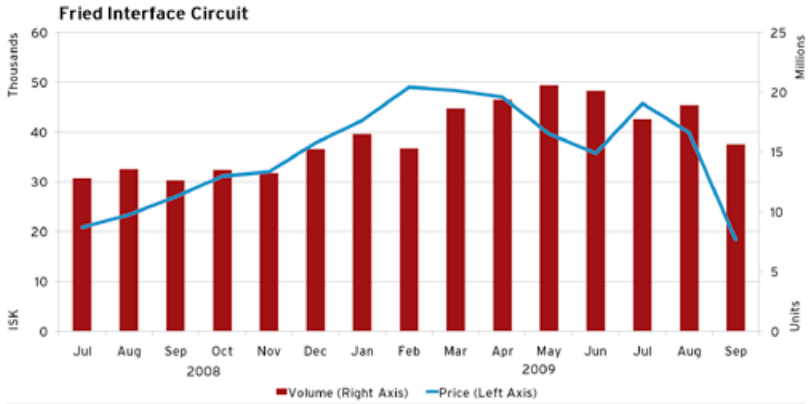


Figure 25: The Fried Interface Circuit is a component used in rig manufacturing. In the last three months the price has fallen by 60%, and units traded fell by 12%. With Apocrypha 1.5 in June, rigs were changed so that they are available in small, medium and large sizes to make them more affordable to use on smaller ships. This resulted in players switching to medium and small rigs, which require fewer components than the original and thus reducing demand for those components.

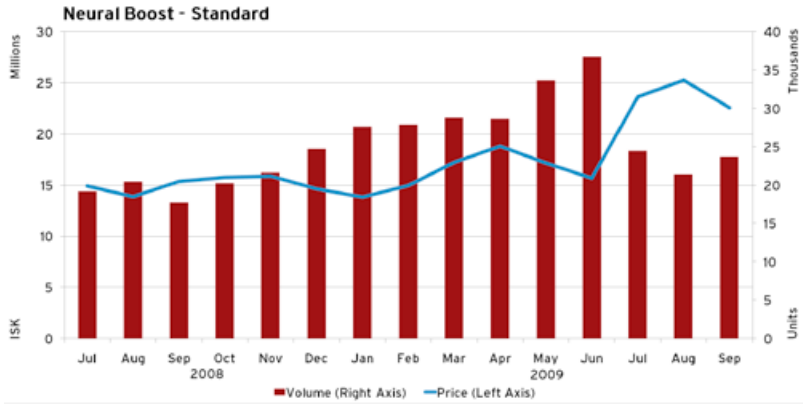


Figure 26: Neural Boost – Standard is an implant for boosting character attributes to increase the rate at which characters train skills. Prior to Unholy Rage, this implant increased in supply and price. After the beginning of Unholy Rage, the price increased dramatically as the supply was significantly reduced. This is attributed to the banned mission runners, as they were supplying large quantities of implants.

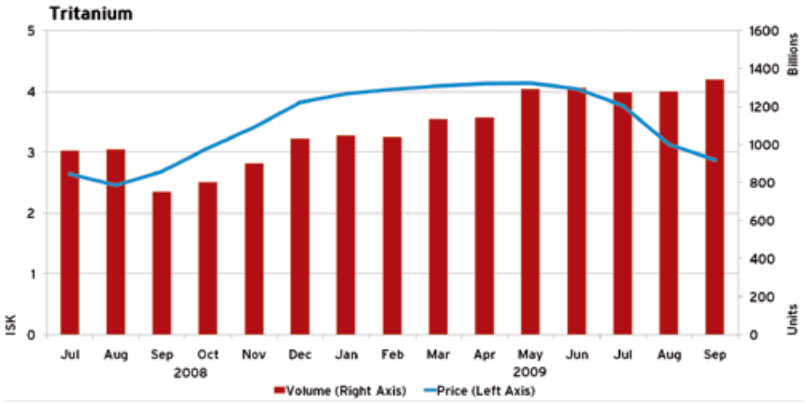


Figure 27: Tritanium is the most used construction material in the EVE. About a year ago the NPC market stopped selling shuttles. This had caused an artificial price cap on Tritanium, as the shuttles could be refined to provide the material at a fixed price. When this was removed, prices started to increase. In June, the respawn rate of asteroids in high security space was increased, which caused an increase in potential supply of Tritanium and a resulting price decline.

Figure 28: Helium Isotopes is a fuel required by Amarr control towers and their faction variants. In the last few months, the volume has been declining slightly while prices have been increasing. This overall positive growth is attributed to increased usage of control towers and thus more demand for fuel. The increased prices can also be linked to Unholy Rage, where large numbers of macro mining accounts were banned.

Figure 29: Liquid Ozone is used as fuel in the operation of starbases. The volume traded had been increasing until Unholy Rage started in late June, after which it has been declining since. Over the same period, prices have been increasing. This can be linked to the large number of ice mining macro accounts that have been banned, causing a significant reduction in supply.

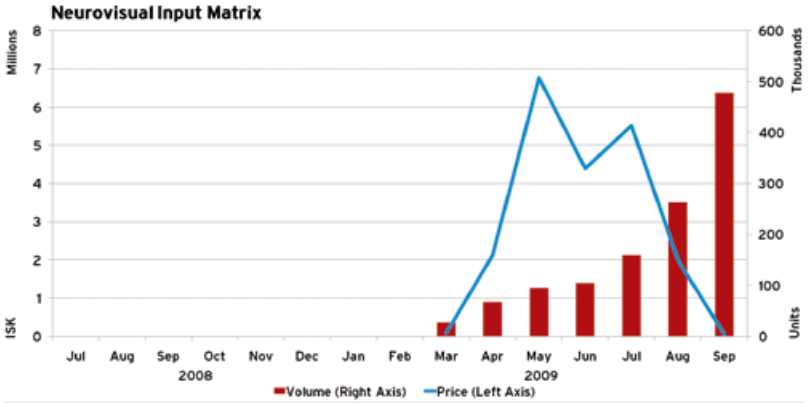


Figure 30: The Neurovisual Input Matrix is a salvage item from the Sleepers in wormhole space. It was introduced in March this year with the release Apocrypha, and is used in the Tech III production process. Recently, the price plummeted, and has never been lower than in September. In August, the drop rate and quantity of the Neurovisual Input Matrix increased, leading to the dramatic rise in supply that can be seen in Figure 63.

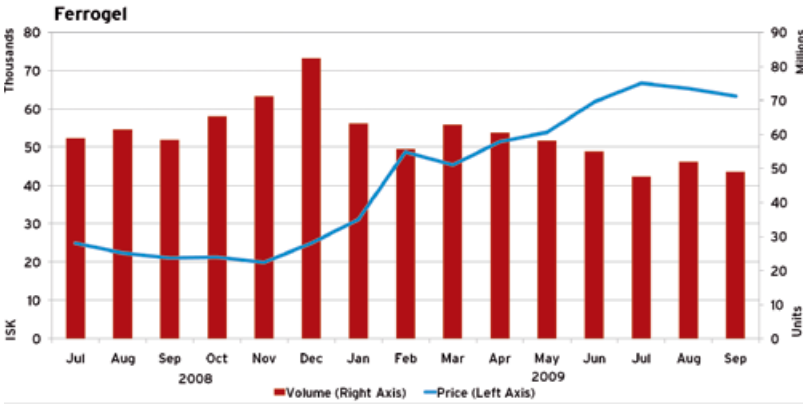


Figure 31: Ferrogel is one of the key materials used in the production of Tech II components. Over the past 15 months the price of Ferrogel has more than doubled. The increase at the beginning of the year is attributed to the discovery and fixing of a long term exploit that was providing a large amount of the ferrogel at that time.

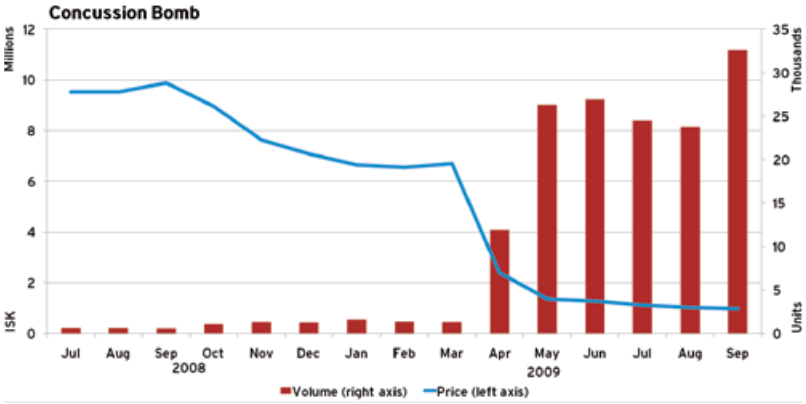


Figure 32: Concussion Bombs were changed dramatically in March with the introduction of Apocrypha. With the balancing changes made to bombers, the use of bombs became considerably more viable. Production costs were dramatically reduced, causing a 23-fold increase in supply and an 86% drop in price.

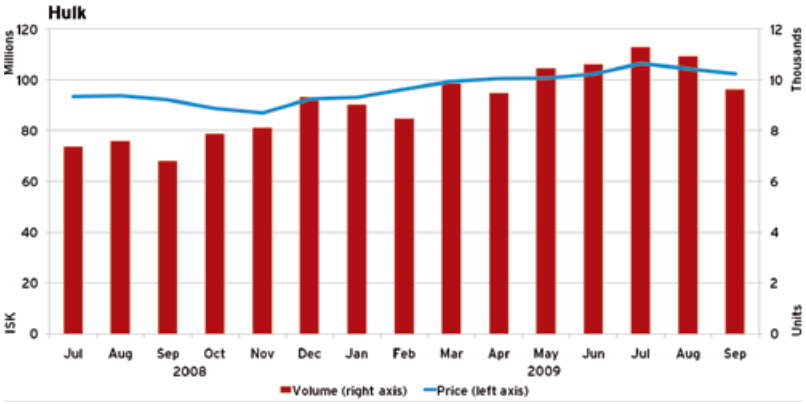


Figure 33: The Hulk is the largest craft in the second generation of mining vessels created by the ORE Syndicate. The supply and price of the Hulk has been rising since July. Over the 15 month period, price has increased by 10%, and volume by 30% despite a small slump over the last 2 months.

Figure 34: The Viator is the Gallente blockade runner transport ship. With the release of Quantum Rise in November 2008, blockade runners received the ability to fit covert ops cloaking devices. This new ability saw both their price and popularity rise considerably.

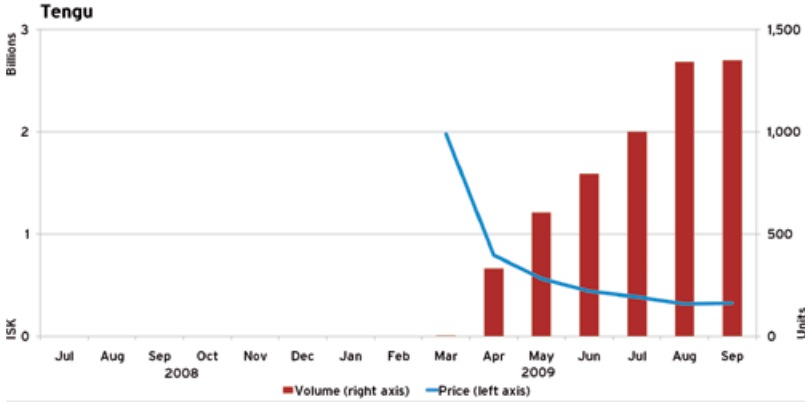


Figure 35: The Tengu is a strategic cruiser, a Tech III ship introduced with Apocrypha in March 2009. There has been a rapid increase in the volume of Tengus sold, and a decline in per unit price. This is attributed to more people using wormhole systems, thus gathering more of the materials required to construct these ships.

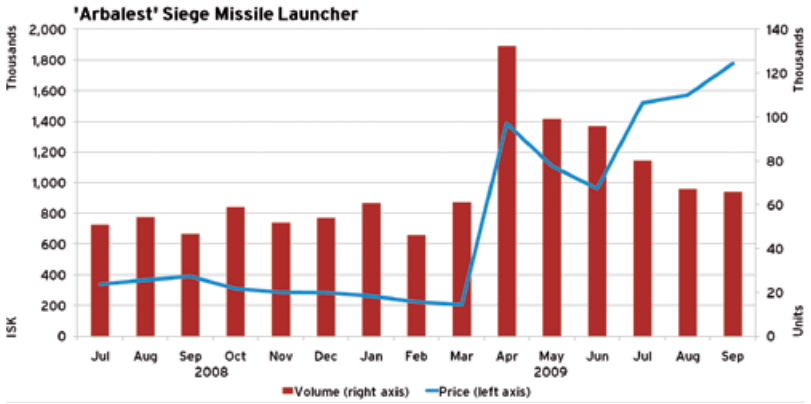


Figure 36: The Arbalest Siege Missile Launcher is a named version of the Siege Missile Launcher I. After the release of Apocrypha, these saw a significant increase in use due to stealth bombers swapping from having cruise missiles as their primary weapon to torpedoes. Because the Arbalest is one of the best siege launchers, with lower fitting requirements than the Tech II Siege Launcher variant, it was a prime choice for stealth bomber pilots. Unholy Rage has also resulted in a lower trade of these modules, as can be seen from the reduction in volume traded after June.

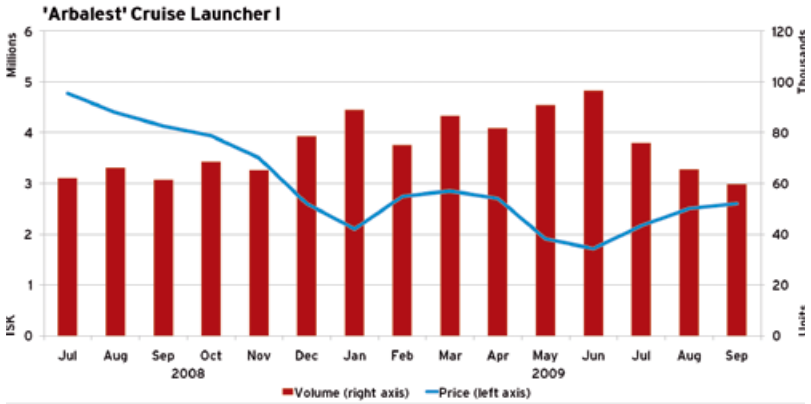


Figure 37: Arbalest Cruise Launcher I's have also seen a considerable drop in volume traded since the beginning of the Unholy Rage campaign. They are a popular battleship fitting choice, as they offer the best option for pilots who do not yet have the skills to utilize Cruise Missile Launcher II's.

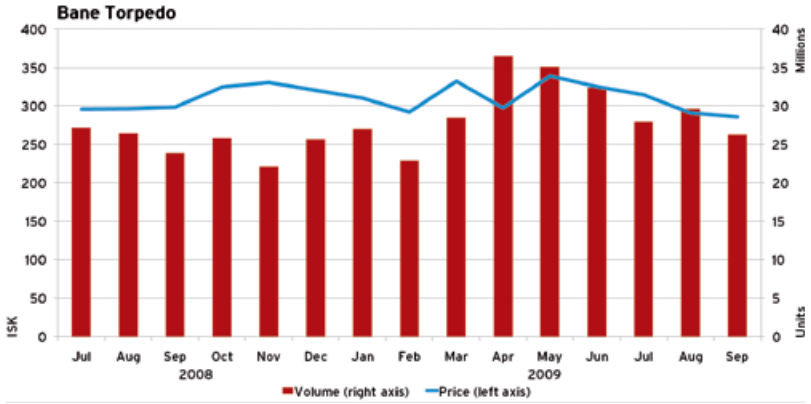


Figure 38: Volatility in the torpedo market from February this year onwards is something that is currently unexplained. With the exception of stealth bombers being given the ability to use torpedoes, there were no game balancing changes made to these items. We do not believe the stealth bomber change was significant enough to account for such a large (even if temporary) increase. Trade increased to 36.5 million units in April, from just 22.9 million units in February. In September, 26.3 million units were traded. Despite the fluctuations in quantity, prices have remained stable.

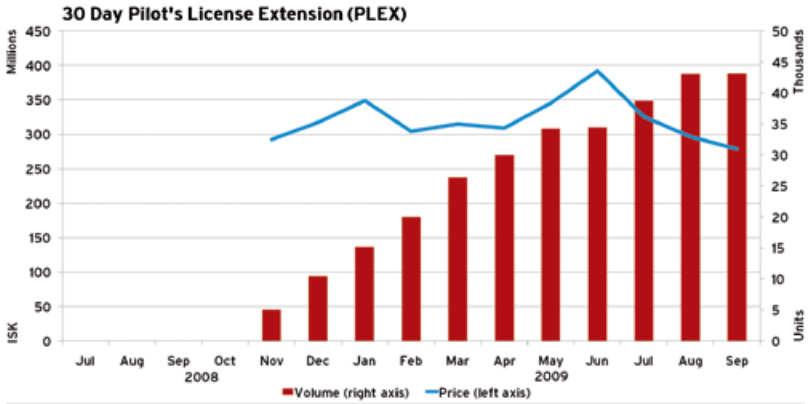


Figure 39: The volume of 30 Day Pilot's License Extension (PLEX) tokens continued to rise rapidly during Q3. The average number of PLEX tokens traded during each month of the quarter was 41,694, compared to 32,941 in Q2 and 20,586 in Q1. The decline in price is largely attributed to reduced demand, due to the number of PLEX consuming users that were banned in the Unholy Rage campaign.

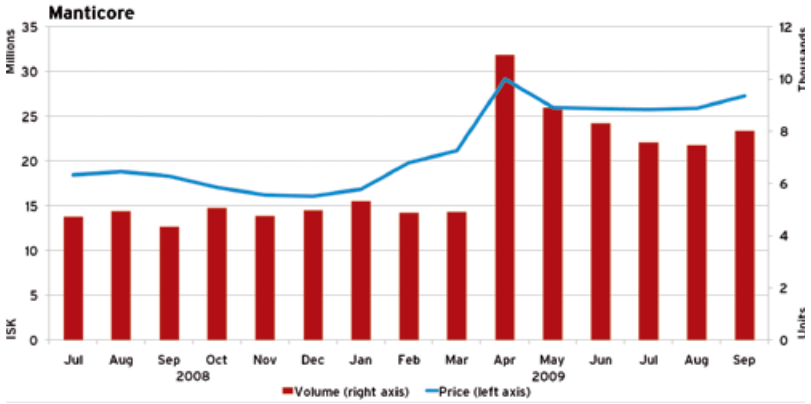


Figure 40: The Manticore is the Caldari stealth bomber. The changes made to stealth bombers in Apocrypha 1.1 caused a significant increase in popularity, with the volume traded on the market in April (10.929) being more than double that of March (4,926). The volume has declined slightly but is still significantly higher than before. The average volume traded per month in Q1 was 5,046, compared to 7,691 in Q3.

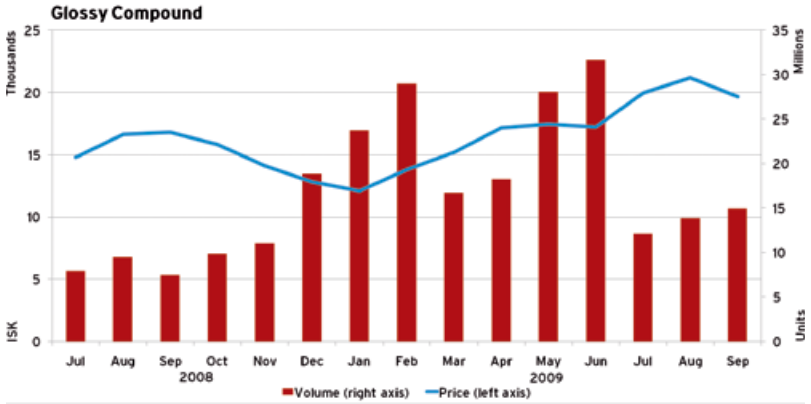
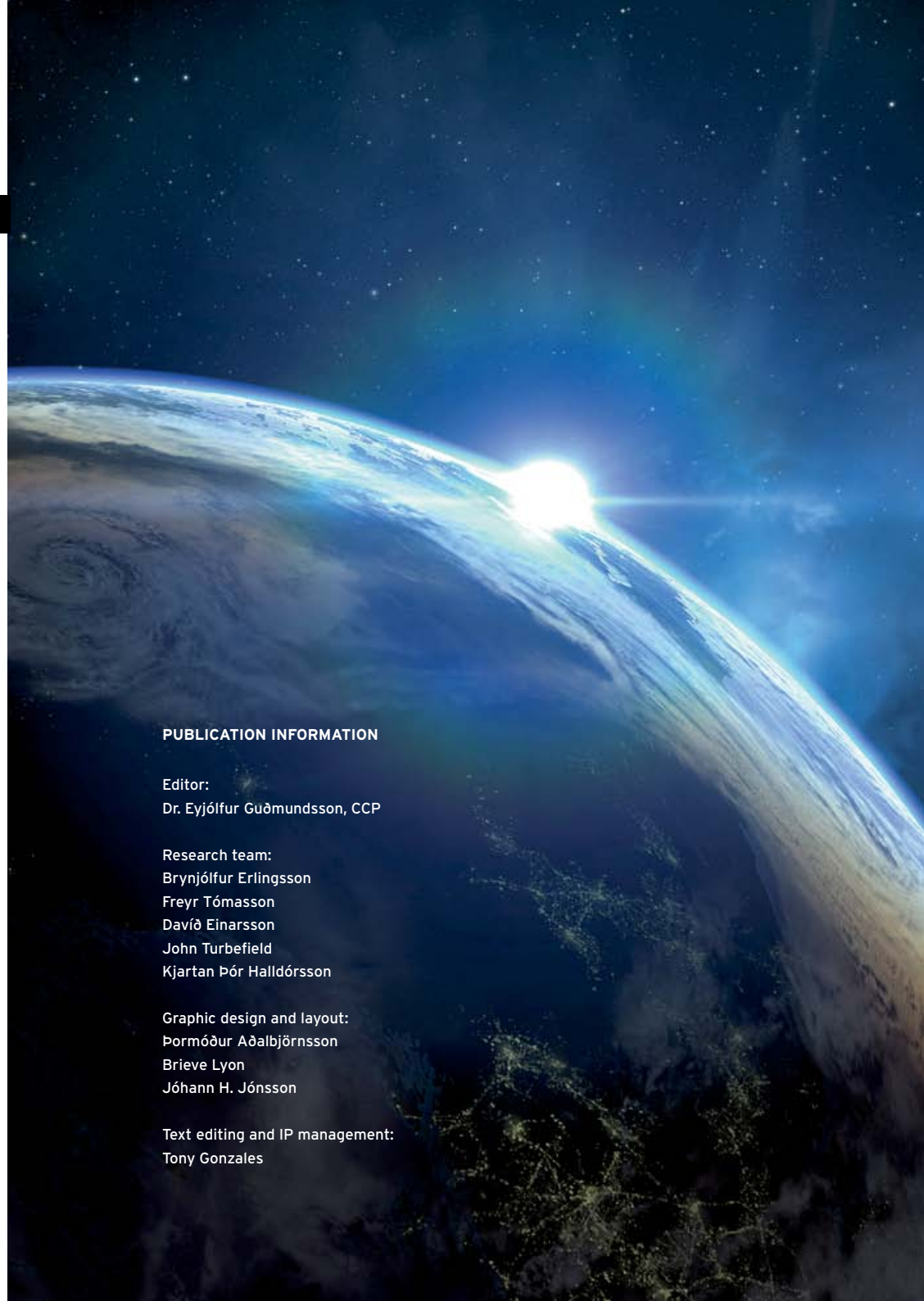


Figure 41: Glossy Compound is a material that can be looted from the wrecks of Rogue Drone battleships and refined to yield various minerals. This item has been significantly affected by actions against real money trade accounts, with sharp declines seen in both March and July after the two large-scale bans of real money trade accounts were performed.



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