

Managing Market Pressure

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15-Dec-1998

Shopping Pressures

My dad was almost always very mild mannered. He considered virtually everything before making a move, and in many cases the time for consideration was not long, because many situations were not new but slight variations of earlier actions.

His manner brushed off on me a bit, and I too consider well about most things before taking an action. A step in haste usually causes considerable waste. There are very few things that need to be done "RIGHT NOW"!

There is something about women and shopping that continually intrigues me. Yes I know that 'retail therapy' has come a long way from the cave, but sometimes I wonder how far the cave has moved towards shopping.

In all, shopping is usually a blissful experience for many women and they are in their element of getting supplies (necessary or not) for the home nest.

The wider the range or variation of any product there is, the longer they will stay there, confusion will be raised to the square of the variation, and this to a large degree nullifies the prime focus, making them highly susceptible to the word "SALE" and the phrase "Percent Off".

Male shopping is on another planet. Men know what they want before they head toward the shopping mall, and if it is not there they continue on to another shopping place.

Men do not suffer well, being told of "SALE" and range variation, and it should come to be no surprise that standing in a Greengrocer's shop and hearing some clown there call out the price of some vegetable and the fact that the supply is fast running out is equivalent to having a bucket of sewer being thrown over a mans' head. (Yes it is focussed on women to rush and buy without thinking, that is the push!)

Auctions are a different matter as the range is virtually zero and the price is being forcibly emotionally roller-coasted. This is a highly vulnerable situation and the only way to be involved in these is to have a known ceiling limit set, and don't be the person pushing up the price.

Having a good grip on the historical prices is an invaluable tool as it is as solid as a stair banister and this should be one of the prime tools that will set the ceiling price. Remember; if the auction price does not reach the reserve price, you can then come in with a much lower offer than the bid that you had during the auction and save another 5 to 15%.

Having said all that, women are generally much better at trading securities and ending up with a larger profit when it is time to account!

Broadcasting and Audio Compression

We all know that somebody turns up the sound for television advertising, but when the finger is pointed, everybody in the broadcast industry looks well beyond innocent and they all say “Not me!”

We all know that it is done solely to get attention and help in the process of confusion so as to cause a sale of a product or service. If it is true that nobody actually turns up the volume, then what is going on?

The fact is, they do not turn up the volume; they wind up the audio compression so that the peaks of the audio remain the same but the average audio level under those peaks considerably rises. This is what makes it sound so much louder.

When flicking across the FM radio bands, the ABC (Australian Broadcasting Corporation¹ - other than JJJ) is that much quieter than the commercial stations, and we have to turn the volume up by about 9 to 12 dB to get the similar acoustic level in the room.

We know that they all use the same equipment to modulate and transmit their programme materials, and we know that they all abide by the Australian Spectrum Management Authority to not over-modulate and lose their broadcasting licences, so what is going on?

When we listen to people talk, we know that we use a ‘headroom’ (intermittent extra power level), of about 12 dB above the average power level. The average level might vary some 36 dB to account for whispering and shouting.

Considering that an average suburban house has a background noise level of about 42 dBA and the SNR (signal to noise ratio) has to be at least 24 dB, then the typical minimum listening level would be 66 dBA, and range up to 102 dBA with peaks about 114 dBA, and that is close to hurting! It should be no surprise that our typical /average listening level is about 80 dBA to 90 dBA.

When listening to a live concert, the average sound level can easily vary by 36 dB, and the headroom will be at least 24 dB.

By applying very similar maths, and knowing that the theatre background noise is about 55 dBA (mainly due to air conditioning) and the SNR has to be at least 24 dB, then the typical minimum listening level would be 79 dBA, and range up to 115 dBA with peaks about 139 dBA, and that can hurt! It should be no surprise that our typical /average listening level in this case is about 84 dBA to 108 dBA.

When it comes to broadcast transmitting and using microphones, we have a very strange phenomenon in that the microphones have to be much closer to the talker or instrument than ourselves.

Our ears are very sensitive and provide the sound in a phase relationship allowing our brain to not only direction find, but also echo cancel. If you record a person with a somewhat remote microphone in a non-acoustically dead room, then play it back, then you will hear echo loud and clear.

¹ <http://www.abc.net.au/>

A classical case of a radio broadcast studio with too much reverberation is that at 2NSB² FM99.3 a community radio station in Chatswood NSW Australia. Only two of the four walls have any sort of deadening on them and the ceiling is hard panelling!

To all intents and purposes the reverberation time constant sounds like about 800 ms when it should be about 400 ms at the most, and the microphones are not really directional, so they pick up everything. When played into a normal room with its own reverberation the additive reverberation makes it sound like a hall!

So we have to have the microphone close to the acoustic source, and this accentuates sound level variations – so something has to be done to minimise this.

There is a range of electronic circuit functions that are universally used in the recording industry. In the range of electronic functions available, there are three that stand out for special treatment.

The first is a volume (or fader) control that allows the electronic equivalent for the audio level to be adjusted so that it does not overload the amplifiers and distort.

The second is a ‘compressor’ and this is where it gets very interesting. As the sound level increases it is passed without tampering – until it reaches a critical level and at this point the compressor cuts in and momentarily turns down the level, compressing the output volume range. The trick is in the settings.

If the cut in trigger point is set high, then only the most extreme percussion blows are “softened”. If the trigger point is set near the average input level, then the louder passages are ‘softened’ making the acoustic range considerably smaller.

If the trigger point is set low, then almost all of the incoming level range is compressed. But that’s not all!

There is an “attack” control that dictates how severe the compression will be, and in mid position, it virtually halves the dynamic range. When full on it can squeeze a 48 dB dynamic range into less than 12 dB and yes this can sound very much louder.

The momentary turning down is controlled by a time constant just like an exponential moving average (EMA) for share prices, and if this setting is inappropriate, then the result can be a “thumping” volume level, like that for some sports commentators.

The third control is a “clipper” or “limiter” and it is like a pair of scissors that simply limits (or “clips off”) anything that is too loud. This is a standard device that is the last electronic function block before the signal goes to the broadcast modulator just as it then feeds into the power amplifier to the broadcast antenna.

With the Clipper in place, no matter what before, the modulation cannot go beyond specification as the limiter prevents these exertions – so the broadcaster keeps within legal limits!

All broadcast transmitters have these in place to prevent their equipment from over-modulating, as that can cause their licence to be revoked.

² www.2nsb.org.au/

So there we have it! Most commercial transmissions have their compression cut in at a low trigger level and have a mid attack resulting in a relatively high compression, limiting the output range to less than say 15 dB.

Most non-commercial (higher fidelity) transmissions have a their compression cut in at a relatively high levels and the attack also set in a mid position so the compression is barely noticeable, and their output range is say 24 dB.

For TV advertising – they want the big bang for their buck, so the ads are pre-recorded and the sound heavily compressed, limiting the sound into about a 6 dB range (and “sounding” very loud).

In all cases the sound is passed into a master fader/mixer so that the peak sound level is peaking on 0 (reference), so the limiter has no action.

Now it is the average sound level that makes the difference and that is why the TV advertisements sound about 3 to 6 dB louder than the other programs, the commercial stations sound 9 to 12 dB louder than the ABC non-commercial stations, and live sounds that much better/cleaner than them all!

It should be obvious now that if you have a limited time and somebody wants to get their message over to you then they are probably going to shout it, use bright colours and fast actions and that is the basis of most time limited advertising whether it is on the TV, in a shopping mall or in a seminar – so beware!

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